DOCUMENT RESUME

ED 233 735 IR 050 384

AUTHOR	Fjallbrant, Nancy, Ed.
TITLE	User Education in the Online Age. IATUL Proceedings, Vol. 14.
INSTITUTION	International Association of Technological Univ. Libraries, Gothenburg (Sweden).
PUB DATE	82
NOTE	137p.; Proceedings of the seminar of the International Association of Technological University Libraries (Gothenburg, Sweden, August 1982).
PUB TYPE	Collected Works - Serials (022) -- Viewpoints (120) -- Reports - Descriptive (141)
JOURNAL CIT	IATUL Proceedings; v14 1982
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Databases; Foreign Countries; Information Centers; Information Networks; *Information Retrieval; International Organizations; Libraries; Library Automation; Library Education; *Online Systems; Professional Continuing Education; *Reference Services; Technological Advancement; *Training
IDENTIFIERS	Database Producers; Online Public Access Catalogs; *Users

ABSTRACT

Papers presented at an August 1982 international seminar on online user education include "The Impact of New Technology on Libraries and Their Users," Brian C. Vickery (United Kingdom); "The Role of NORDINFO in Promoting Online Activity: NORDINFO-Origins and Control," Theodora Oker-Blom (Finland); "Librarians and the New Technology: The Process of Continuing Education," Alina Vickery (United Kingdom); "Online Training at Chalmers University Library," Nancy Fjallbrant (Sweden); "The Role of Clearinghouses in Promoting Cooperation," Ian Malley (United Kingdom); "Experiences from Training in the Use of IRS-QUEST at the Royal Institute of Technology, Stockholm," Lars Klasen (Sweden); "Training in the Use of Medline," Viveka Alton Lundberg and Per O. Olsson (Sweden); "Experimental Use of Online Databases in a Public Library Environment," Lillemor Widgren (Sweden); "Online User Education from a Network Operator's Point of View," Kathleen Bivins (Sweden); "Online Education from a System Operator's Point of View," Gro Horthe Pavicevic (Norway); "User Education from a Database Producer's Point of View," Adolf Stern (Sweden); "The ALIS System," Esmar P. Pedersen (Denmark); and "End-User Training in the Use of Online Catalogues: TENTTU at Helsinki University of Technology Library," Arja-Riitta Haarala (Finland). Also included are eight papers entitled "Online Education Round the World," which cover Britain (Alina Vickery); Australia (Nancy Fjallbrant); the Netherlands (M. Skaliks); West Germany (Elizabeth Vogel); Denmark (Betty Wedel); Finland (Arja-Riitta Haarala); Norway (Aud Lamvik); and Sweden (Nancy Fjallbrant). A list of seminar participants and the seminar program are also provided. (ESR)

ED233735

IATUL Proceedings

Vol. 14. 1982

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☒ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

User Education in the Online Age

edited by Nancy Fjällbrant

IR050384

Published by IATUL
Chalmers University of Technology Library
Göteborg, Sweden

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Nancy Fjallbrant

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

© 1982

ISSN 0018-8476

Printed by
Chalmers University of Technology Library
Göteborg, Sweden

CONTENTS

Page

FOREWORD i

SEMINAR PROGRAMME ii

"THE IMPACT OF NEW TECHNOLOGY ON LIBRARIES AND THEIR USERS"
Brian C Vickery 1

ONLINE EDUCATION ROUND THE WORLD: BRITAIN
Alina Vickery 11

ONLINE EDUCATION ROUND THE WORLD:
THE USE OF ONLINE INFORMATION RETRIEVAL
IN AUSTRALIAN INSTITUTIONS OF HIGHER EDUCATION
Nancy Fjällbrant 19

ONLINE EDUCATION ROUND THE WORLD: THE NETHERLANDS
M. Skaliks 27

ONLINE EDUCATION ROUND THE WORLD: WEST-GERMANY
Elizabeth Vogel 31

ONLINE EDUCATION ROUND THE WORLD: REPORT FROM DENMARK
Betty Wedel 39

ONLINE EDUCATION ROUND THE WORLD: FINLAND
Arja-Riitta Haarala 43

ONLINE EDUCATION ROUND THE WORLD: NORWAY
Aud Lamvik 45

ONLINE EDUCATION ROUND THE WORLD: EDUCATION AND
TRAINING OF END-USERS IN SWEDISH ACADEMIC LIBRARIES
Nancy Fjällbrant 53

THE ROLE OF NORDINFO IN PROMOTING ONLINE ACTIVITY
NORDINFO-ORIGINS AND CONTROL
Theodora Oker-Blom 59

LIBRARIANS AND THE NEW TECHNOLOGY: THE PROCESS OF CONTINUING EDUCATION
Alina Vickery 63

ONLINE TRAINING AT CHALMERS UNIVERSITY LIBRARY
Nancy Fjällbrant 77

THE ROLE OF CLEARINGHOUSES IN PROMOTING COOPERATION
Ian Malley 83

EXPERIENCES FROM TRAINING IN THE USE OF IRS-QUEST AT THE ROYAL INSTITUTE OF TECHNOLOGY, STOCKHOLM
Lars Klasén 93

TRAINING IN THE USE OF MEDLINE
Viveka Alton Lundberg & Per O Olsson 103

EXPERIMENTAL USE OF ONLINE DATABASES IN A PUBLIC LIBRARY ENVIRONMENT
Lillemor Widgren 107

ONLINE USER EDUCATION FROM A NETWORK OPERATOR'S POINT OF VIEW
Kathleen Bivins 111

ONLINE EDUCATION FROM A SYSTEM OPERATOR'S POINT OF VIEW
Gro Horthe Pavicevic 117

USER EDUCATION FROM A DATABASE PRODUCER'S POINT OF VIEW
Adolf Stern 121

THE ALIS SYSTEM
Esmar P Pedersen 125

END-USER TRAINING IN THE USE OF ONLINE CATALOGUES TENTTU AT HELSINKI UNIVERSITY OF TECHNOLOGY LIBRARY
Arja-Riitta Haarala 129

PARTICIPANTS 132

FOREWORD

In August 1982, an international seminar was held at Chalmers University, Gothenburg, on the topic User Education in the Online Age. Financial support for this seminar was given by a number of organizations: the Delegation for Scientific and Technical Information, Sweden, the British Council, the Nordic Council for Scientific Information and Research Libraries and the International Association of Technological University Libraries - IATUL. In addition the Delegation for Scientific and Technical Information has made a grant towards the publishing of the papers presented at the seminar. The seminar participants would like to express their thanks for this support.

The meeting on User Education in the Online Age concluded with a discussion on "Future needs in user education". Points raised during this closing session included the following: the importance of a close relationship between traditional bibliographic instruction and online education, the rapidly expanding nature of this area of information science and consequent need for the development of new methods, and possibilities for international cooperation. The seminar participants expressed the view that online education was an area particularly suitable for international cooperation and exchange of ideas. It is hoped that it will be possible to have further seminars on this topic at regular intervals in the future, where systems operators, database producers, and information practitioners and educators will be able to discuss the needs and practices within this area of education for information retrieval.

Nancy Fjällbrant

INTERNATIONAL ASSOCIATION OF TECHNOLOGICAL UNIVERSITY LIBRARIES
ASSOCIATION INTERNATIONALE DES BIBLIOTHEQUES D'UNIVERSITES POLYTECHNIQUES
INTERNATIONALE VEREINIGUNG DER BIBLIOTHEKEN TECHNISCHER UNIVERSITATEN
ASOCIACIÓN INTERNACIONAL DE BIBLIOTECAS DE LAS UNIVERSIDADES TECNOLOGICAS
МЕЖДУНАРОДНОЕ ОБЪЕДИНЕНИЕ БИБЛИОТЕК ВЫСШИХ ТЕХНИЧЕСКИХ ШКОЛ

USER EDUCATION IN THE ONLINE AGE

INTERNATIONAL SEMINAR

17th - 19th August 1982, Gothenburg, Sweden

Programme:

August 17th — Chalmers Manor House

09.00 Registration

09.15 Opening address.
Sven Westberg, Library Director, Chalmers University of Technology Library

09.30 Keynote address
"The impact of new technology on libraries and their users"
Prof. Brian C. Vickery, University College, London, U.K.

10.30 Coffee

11.00 Online education round the world. Reports from:
- United Kingdom
- Australia

12.30 Lunch (Student Union of Chalmers)

SB lecture theatre

14.00 Online education round the world continued. Reports from:
- Holland
- West Germany
- Denmark
- Finland
- Norway
- Sweden

16.30 The role of NORDINFO in promoting Online activity.
Theodora Oker-Blom, NORDINFO - The Nordic Council for Scientific Information and Research Libraries, Esbo, Finland

Visit to Chalmers Library

17.30 Reception - Chalmers Manor House

August 18th Chalmers Library Seminar Room

09.00 Continuing training of librarians in new information technology.

Demonstration of programmes for training.

Alina Vickery, Central Information Services, University of London.

10.30 Coffee

11.00 Online promotion, training and education programmes at Chalmers University of Technology.

Nancy Fjällbrant, Chalmers University of Technology, Sweden.

12.30 Lunch (Student Union of Chalmers)

SB lecture theatre

14.00 The role of clearing houses in promoting cooperation.

Ian Malley, Loughborough University of Technology, U.K.

15.00 Experiences from training in the use of QUEST at the Royal Institute of Technology, Stockholm.

Lars Klasén, Royal Institute of Technology, Stockholm, Sweden.

15.30 Coffee

16.00 Training in the use of MEDLINE.

Per Olsson, Viveka Alton-Lundberg.
Medical Information Centre, MIC, Caroline Institute, Stockholm, Sweden.

16.30 Experimental use of online databases in a public library environment.

Lillemor Widgren, Halmstad Public Library, Sweden.

19.30 Conference Dinner Chalmers Manor House

August 19th **Chalmers Library Seminar Room**

09.00 Online education from a network operator's point-of-view.

Kathleen Noerr, SCANNET, Sweden.

09.30 Online education from a system operator's point-of-view.

Gro Hörthe Pavicevic, NSI Norsk Senter for Informatikk, Norway.

10.15 Coffee

10.30 Online education from a database producer's point-of-view. Training in the use of BYGGDOK - a Scandinavian database for building and urban planning.

Adolf Stern, BYGGDOK, Sweden.

12.00 Lunch (Student Union of Chalmers)

Chalmers Manor House

13.30 End-user training in the use of online catalogues:

1. ALIS - Automated Library System.
   Esmar Pedersen, National Technological Library of Denmark.
2. TENTTU at Helsinki University of Technology Library.
   Arja-Riitta Haarala, Helsinki University of Technology, Finland.

15.00 Open discussion

Future needs in user education. Introductory views by:

Nancy Fjällbrant

Ian Malley

Alina Vickery

Chairman Brian Vickery

16.00 Close of seminar. Coffee.

THE IMPACT OF NEW TECHNOLOGY ON LIBRARIES AND THEIR USERS

Brian Vickery

University College, London, England

The new technology considered in this paper is, of course, "telematics" - the coming together of computers and telecommunications. In particular, I am concerned with access online to information held in remote computer files.

The information to be accessed can be broadly classified into

- bibliographic references
- factual and numeric data
- full texts.

What I want to consider is the changing relation between libraries and their users as increasing proportions of these forms of information become available in machine-readable form.

To begin, let us contrast the search patterns

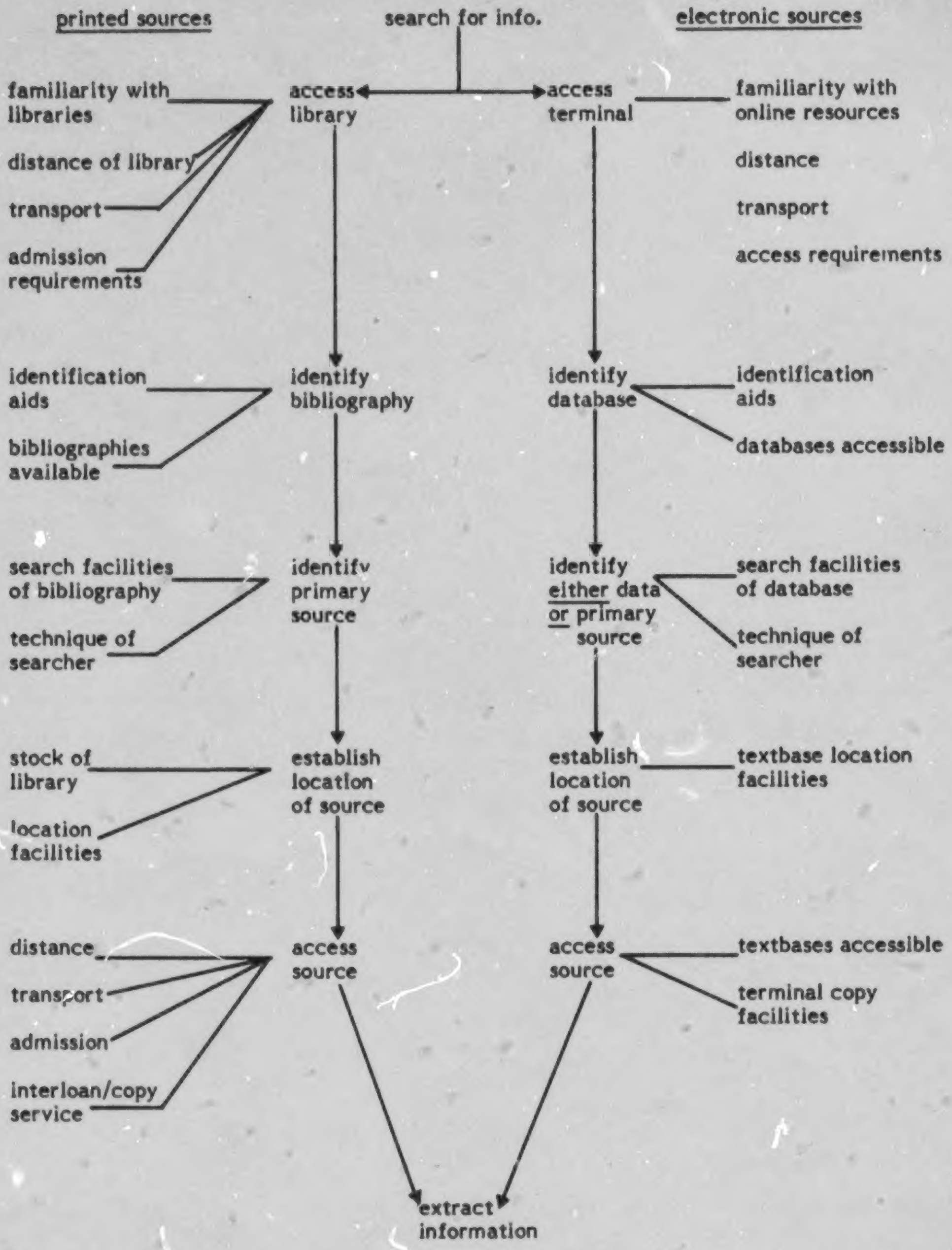
(a) through exclusively printed sources and

(b) through exclusively electronic sources.

Figure 1 shows the successive steps in the two kinds of search and besides these, factors that influence the quality of search. Most of these factors will be familiar to readers.

Any information search - manual or online - can be undertaken directly by an end-user, or it can be delegated to an intermediary such as a member of the library staff. Much manual search is undertaken directly by end-users, but intermediaries play an important role in online bibliographich search. The question I wish to explore is: how will the switch to electronic materials and online search affect the division of work between end-user and librarian? It will be best to examine in turn bibliographic information and factual information and then draw some general conclusions.

FIGURE 1


printed sources
search for info.
electronic sources
familiarity with libraries
access library
access terminal
familiarity with online resources
distance of library
distance
transport
transport
admission requirements
access requirements
identification aids
identify bibliography
identify database
identification aids
bibliographies available
databases accessible
search facilities of bibliography
identify primary source
identify either data or primary source
search facilities of database
technique of searcher
technique of searcher
stock of library
establish location of source
establish location of source
textbase location facilities
location facilities
distance
access source
access source
textbases accessible
transport
terminal copy facilities
admission
interloan/copy service
extract information

The arrowed links represent successive steps in search.

The plain links represent factors that may influence the quality of the search (range of information available, pertinence of information received, time to complete search, cost to user)

Bibliographic information

The impression that emerges from our experience is that most online access to bibliographic databases goes through intermediaries. Is this situation likely to change? Under what conditions might library and information services lose their near monopoly?

'A move', from the use of library and information services (LIS) for access to bibliographic information, towards direct end-user access (EUA) - may occur:

(a) because of deficiencies in LIS services, or policy decisions by LIS managers, that propel users towards other choices

or

(b) because the alternative choices offer advantages or opportunities that attract users towards them.

Let us for the present discount the first alternative, and assume that LIS act so as to provide effective online service. What factors might even then attract users away from them, and towards direct access from their own terminals? Despite all the evidence that it has not yet happened, there is a widespread belief that this is a likely development. The belief is sometimes fuelled by the opinion that it is a desirable or even inevitable outcome. A typical statement is an article by Meadow, subtitled "Why end users will eventually take over the terminal". His arguments are that (1) online bibliographic search is analogous to online programming, with which an increasing number of end-users will have acquaintance, (2) search languages will become more user-oriented, easier for users to learn, (3) search costs will decrease and there will be less need for the time-saving skills of the experienced intermediary, and (4) information staff will themselves wish to move on to "higher things" and put pressure on end-users to learn to search for themselves. Let us consider these and other factors.

It is clear that general familiarity with the use of a terminal is increasing and will increase - the introduction of microcomputers into UK schools is an obvious step along this road. I will argue further in the next section that there is likely to be increasing user familiarity not only with online use in general, but also with online information search for factual and numeric data. This familiarity will increase the likelihood of users also undertaking online bibliographic search. Familiarity further implies the availability of terminals on which to conduct search - and forecasts suggest that access to hardware will not be a barrier to end-user search.

A successful bibliographic search requires a fair amount of knowledge and skill: identifying appropriate databases; identifying the most suitable hosts; using the requisite command languages; mastering the database structure, terminology and indexing practices; formulating an appropriate search strategy. Since intermediaries do all these things, they are certainly not beyond the wit of the end-user - provided that he or she has the opportunity to develop some of this knowledge and skill. But this necessitates both training and practice.

There is much talk of end-user training, some of it within the LIS field (particularly among industrial librarians and information officers) and more among database producers and processors. The latter groups - eager to expand their markets - are active in offering such training. Initial training is one thing, but the practice necessary to develop and maintain skills is another. Here we come to the point that many, perhaps most, users are likely to be irregular and infrequent users of online bibliographic search. Only a minority of end-users will gain and keep the necessary skills to undertake a search of any complexity. We may well see a growth of direct end-user access for simple searches on a favourite database, but a skilled intermediary would continue to be needed for most complex searches, particularly if they ranged over a number of databases and hosts.

But perhaps online bibliographic systems will become more "user-friendly", requiring much less effort to master and to use, so that the development and maintenance of skills will become less difficult? Meadow mentions this possibility in relation to search languages. Williams, speaking in 1977, reported efforts to simplify, standardise and make more "transparent" a number of the steps involved in information search: an automatic database selector; common command languages; automatic database vocabulary switching; multilingual search facilities; common access protocols; user-cordial interfaces. More recently, there have been published reviews of research aimed at facilitating direct end-user access (Brenner et al, Dayton et al).

Interesting experimental results have been obtained in this research, and some practical developments have resulted. Undoubtedly systems can and will be made more user-friendly, but the technical possibilities of achieving "transparency" in the choice of databases and of hosts, in the use of database terminology and search strategy formulation, seem to be limited at present. The prospect of an online bibliographic "expert system", that will painlessly lead the novice user towards the information required, is an attractive and laudable goal for research, but its realisation is distant.

There is another practical consideration relating to the rapid development of much more user-friendly bibliographic search systems. Even given the technical possibility, to achieve implementation will require the investment of much time and money by a variety of organisations - agencies funding research and development, database processors and producers, hardware manufacturers, etc. What would prompt them to make this heavy investment? Presumably a belief that there is a large and untapped market for direct end-user access to online bibliographic systems. Is there likely to be such a belief? Are library and information services providing such effective access (for both their own and "outside" users) that they are in process of catering for all potential end-users? Or is there likely to be a substantial additional market of end-users who might welcome user-friendly direct access? If funders believe that there is, they will have an incentive to make major advances in the ease of use of online systems.

We need to move back now to the alternative set aside earlier, that deficiencies in LIS services or policy decisions by LIS managers might propel users towards choosing direct access as a channel for online bibliographic information. The two deterrents to the use of an online search service are high charges and service delays. The effect of high charges is lasting only if there are no cheaper alternatives. Continued service delays can permanently depress demand.

Is end-user access likely to be a cheaper alternative? If LIS charges include staff costs and overheads, EUA will avoid these, but the direct cost of access to a host will remain. "Amateur" search of a database is undoubtedly less cost-effective than search by a skilled intermediary, whether the system is user-friendly or not, so that the overall cost to the user of a personal search may not be less than the charge for a mediated search. Meadow's argument, that search costs will be so low that time-saving will no longer be a significant factor, seems optimistic.

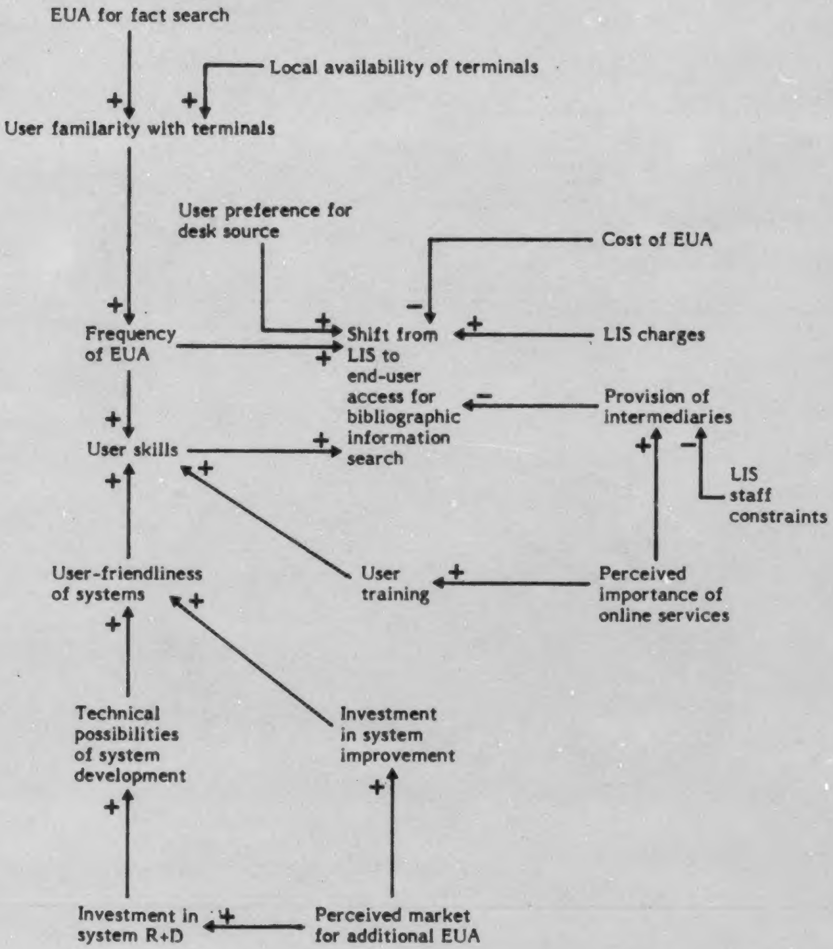
There is a counteracting factor here. Even though EUA may be less cost-effective than mediated search, if there is familiarity with use of a readily accessible terminal, EUA may be preferred. In information search generally, there is considerable evidence that a readily available source will be used in preference to one more distantly accessible, even when the quality of the local source is known to be lower (experimental evidence for this was reported many years ago and most librarians can produce anecdotal evidence to support it). Consequently a terminal on the user's desk may be preferred to a terminal on a distant intermediary's desk, despite known differences in cost-effectiveness (remember that the journey to the intermediary is also a cost).

Lastly let us turn to service delays. Their basic cause is failure on the part of LIS management to commit sufficient staff time to online search. This may be failure to perceive the true level of potential demand, or a general insensitivity to the relative importance of online search in information provision. LIS that are insensitive in this way may find that some of their end-users are "doing it themselves". If LIS remain as responsive to user needs as their professional protestations imply, in the long run this outcome may be avoided.

But failure to provide search staff time may not be due to insensitivity: it may be deliberate policy, enforced by general staffing constraints. One possible outcome of the current economic situation may be a reduction in LIS staffing levels. Services may then be impelled to introduce the policy of encouraging end-user access to online systems. This tendency has already appeared in some industrial LIS. Instead of an increasing use of staff as intermediaries, LIS will reduce this activity, while spending some time on training end-users. This may make search less cost-effective as already discussed, but for LIS it would be making a virtue out of a necessity.

This discussion of end-user access for online bibliographic search is summed up in the following diagram. A plus sign indicates that an increase in the influencing factor encourages a shift to EUA, a minus that it discourages a shift.

FIGURE 3


EUA for fact search
Local availability of terminals
+
+
User familarity with terminals
User preference for desk source
Cost of EUA
+
−
+
Frequency of EUA
+
Shift from LIS to end-user access for bibliographic information search
+
LIS charges
−
Provision of intermediaries
+
User skills
+
+
+
−
LIS staff constraints
+
User-friendliness of systems
User training
+
Perceived importance of online services
+
+
Technical possibilities of system development
Investment in system improvement
+
+
Investment in system R+D
+
Perceived market for additional EUA

The interrelation of factors is complex, and assessment of their relative importance is difficult. In my view, the major factors influencing a shift towards end-user access for bibliographic information search are

(1) online use for all kinds of purposes is going to increase, and those in regular and frequent need of bibliographic information may well become direct searchers

(2) constraints on funding and staffing may force LIS to encourage this trend.

If these two factors work together, the danger is that the majority of users with irregular and infrequent demands for online search, may not develop the skills for EUA, and may not find intermediaries available to carry out searches for them. The few may benefit, but many may do without.

There is the further implication, already mentioned, that if the volume of online bibliographic search is restricted to those with frequent need, the viability of host processors offering bibliographic databases may suffer. We have seen during recent years how competitive is the field, and how finely balanced financially are the host agencies.

Factual and numeric information

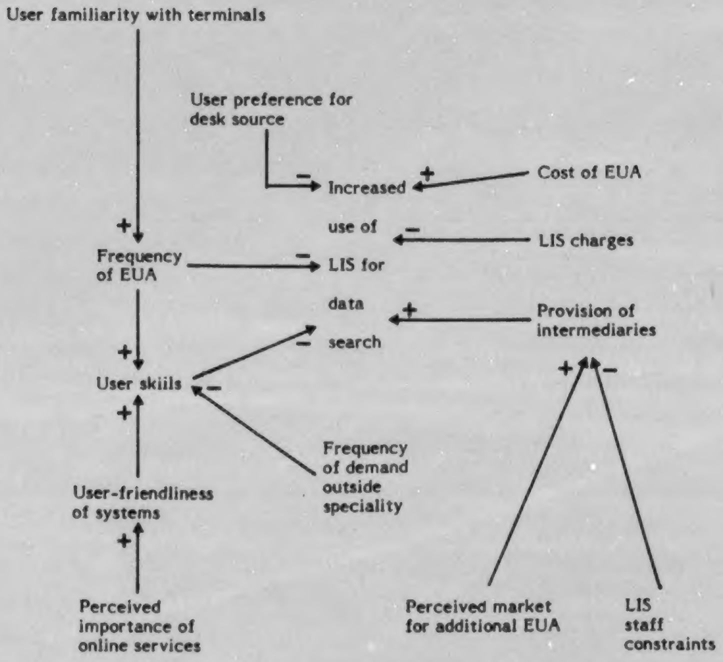
It is possible to deduce from data in the literature that much online access to factual and numeric information is already direct access by the end-user. (For example, it is generally agreed that the major part of revenue from online search comes from credit/financial/economic databank use, and it is fairly clear that little of this use goes through formal LIS.)

There are evident reasons why this should be the case: (1) The need for access to data is likely to be frequent among those whose work involves solving problems or taking decisions. As an example, laboratory chemists search for data at least once a day, and there has been reported a similar frequency of demand for product information among architects. (2) User skill in accessing databanks online is likely to be greater than in using bibliographic files - particularly if the data is directly in his field of expertise. (3) Databanks often provide facilities to manipulate the data retrieved, so that retrieval and data handling activities are linked: this increases the likelihood that it will be the end-user who carries out the activity. (4) Summarising these points, data retrieval is an integral part of the end-user's daily work activity - it is not a preliminary to work, as we may think of bibliographic information - and the natural place for the terminal is on the user's desk.

Rather than discuss a shift towards EUA for factual and numeric information, it is more helpful to consider whether there are factors that might lead to a shift away from it, towards the use of libraries.

As regards the potential role of LIS in online access to factual and numeric information, we must once again consider the irregular user. There is first the end-user who does not have a continuing and pressing need for such data, but an occasional need: this is the type of user for which such facilities as PRESTEL in public libraries would seem to cater, and we may envisage a growing though limited use of such facilities. Second, we have the end-user who may regularly access online databanks in his or her own speciality, but who occasionally needs data outside his field: this type of occasional user may well need an information specialist to direct him to appropriate online sources and aid him in accessing them. The LIS in commercial, industrial, government and academic environments has a role to play here. This role may be limited by the same factors as noted for bibliographic search - LIS charges in relation to cost of EUA, staffing constraint, and generally the perceived importance of online facilities. We may sum up the situation as follows:

FIGURE 3


User familiarity with terminals
User preference for desk source
Increased use of LIS for data search
Cost of EUA
LIS charges
Frequency of EUA
Provision of intermediaries
User skills
User-friendliness of systems
Frequency of demand outside speciality
Perceived importance of online services
Perceived market for additional EUA
LIS staff constraints
+
−

The factor at the bottom left of the diagram is important: it was a belief in a very large market for end-user access to information that led to the whole development of PRESTEL and other public viewdata systems. Although initial hopes have not been fulfilled, it is clear that there is still a strong belief that the full potential of this market may yet be realised.

Conclusion

I have tried to look separately at two areas of access to online information but it is clear how interdependent are these areas and how complex are the factors involved. It is now time to consider in more general terms the following issue: assuming that libraries and information services wish to play an important role in the telematic provision of information, what policies should they adopt to maximise this role?

It can be argued that while the logic of print-on-paper is local availability through multiple outlets of multiple copies of a particular document, the logic of telematics is that of multiple access via telecommunications networks to a single copy of a document held remotely in a machine-readable form. These statements express the technological logic, but in reality technology is constrained by economic, political, institutional and ideological factors.

The objective logic of print-on-paper was expressed subjectively by the striving of each library to be locally self-sufficient. The purity of the logic has been steadily eroded during the last half-century. Nearly 20 years ago, I explored the collapse of library self-sufficiency and outlined the implications of the proposition that "no library can stand alone" (Vickery, 1964). In practice, libraries are increasingly interdependent. The reality is not what the simple logic of print-on-paper dictates. Libraries form a network, with some hierarchical elements (BLLD, Regional Bureaux, local cooperatives). Users are given local service based on local holdings that are increasingly supplemented by those of other localities and of central agencies. Subjectively the change has now been characterised by our Library and Information Services Council as a need to "move more purposefully from a mainly 'holdings' strategy requiring the accumulation of large stocks towards a mainly 'access' strategy in which emphasis is placed on the efficient procurement of material and information as required."

We may also argue that logic of telematics is unlikely to be realised. If we look only at bibliographic records, it is certainly not the case that telecommunications gives access to a single machine-readable copy. The same database may be available on more than one host, and there is considerable duplication of references among databases. Many of the same MARC records appear in the files of each automated cataloguing cooperative. The reality is that library users of electronic information are given local services that may be based on some local machine-readable files, but which are mainly based on a considerable number of distant sources, accessed through a physical telecommunications network. Although the balance between local and remote sources may be different, the patterns of service as between printed and electronic materials need not be so different.

They need not be so different if libraries and information services act so as to maintain their role in information provision. The key concept here is of course local service: if LIS remain (or become) keenly aware of user needs for access to online bibliographic and factual information, (and eventually to full text) and of the opportunities that now exist to provide this access, they will maximise the chances of becoming important channels of access to electronic information. In practical terms, this means providing effective online services by

(1) maintaining an adequate supply of skilled intermediaries
(2) keeping service delays to a minimum
(3) seeking ways to minimise charges to users
(4) where desired, offering effective user training in online use.

To maintain a rounded service that includes the more traditional library role, effective document backup services need to be provided by

(5) optimising facilities for scanning local stock
(6) speeding document supply, whether from local or remote sources
(7) making full use of remote sources, whether by interlibrary loan or by online document delivery in the future.

All these services can be diminished or throttled by staff constraints and general lack of resources, and if this occurs then LIS will inevitably find that online demand is switched to other channels - and I have argued here that this means mainly to direct end-user access. The present economic pressures on libraries do therefore present this possibility. It is up to the library world whether this is treated as a threat to be feared or a challenge to be accepted.

References

1. BRENNER, L.P., et al "User-computer interface designs for information systems: a review", Library Research, vol.2 1980/81, pp. 63-73.

2. DAYTON, D.L., et al "Automated techniques for online search guidance: a review", 4th International Online Information Meeting, 1980, Oxford, Learned Information, 1980, Oxford, Learned Information, 1980, pp. 317-333.

3. MEADOW, C.T. "Online searching and computer programming: some behavioral similarities", Online, vol. 3 (1979) no. 1, pp. 49-52.

4. VICKERY, B.C. "A rational library system", Library Association Record, vol. 66 (1964), pp. 377-382.

5. WILLIAMS, M.E. "Online retrieval - today and tomorrow", Online Review, vol. 2 (1978) no. 4, pp. 353-366.

ONLINE EDUCATION ROUND THE WORLD: BRITAIN

Alina Vickery
Central Information Services, University of London, London, England

THE following organisations are offering online training courses in Britain:

- Database processors;
- Database producers;
- Database producers and database processors;
- Information brokers;
- International network coordinators;
- Industrial companies;
- Academic institutions;
- Professional organisations;
- International organisations;
- Online user groups
- Library schools

Let's look in more detail on each of the above mentioned groups.

1. Database processors.

Four organisations dominate the online training scene in the U.K. These are:

1. BLAISE;
2. DIALOG;
3. SDC/ORBIT;
4. DIALTECH:

In the last 1 - 2 years, three other organisations started to play a significant role in training users. These are: INFOLINE, DATASTAR, and TELESYSTEMES.

BLAISE

BLAISE has introduced changes into their services. The British Library decided to concentrate its own resources primarily on the MARC databases and related systems. Two new services have been introduced: BLAISE-LINK and BLAISE-LINE. BLAISE-LINK was launched in April this year in cooperation with the US National Library of Medicine (NLM). The BLAISE subscribers to MEDLINE can now dial the NLM computer system in Bethesda, Maryland. All the databases previously available on BLAISE plus several others which have not in the past been available to BLAISE subscribers are now available on BLAISE-LINK. The name BLAISE-LINE was adopted for the British Library's UK-based online service, operated on the computer at Harlow, and centred round UKMARK and other library databases.

BLAISE initiated its courses in 1977. These were conducted in the following areas: MEDLINE for beginners; MEDLINE for experienced users; MARC; TOXLINE/CHEMLINE; and special courses in the use of EDITOR. All courses were held in London, and their cost ranged from 10 pounds to 40 pounds. The three-day course on MARC files became more expensive, namely 75 pounds.

During July 1979 to December 1981, BLAISE organised 126 courses. The development of BLAISE courses can be clearly seen. The biomedical training courses, developed in the pre-BLAISE era, are well established, and as new files are added to the system, such as HISTLINE, BIOETHICS etc., specialised training programmes are developed. BLAISE courses deal also with the MARC record and with the use of the EDITOR.

DIALOG

LOCKHEED/DIALOG started its activities in training courses very early and the courses were from the beginning spread widely throughout the United States and Europe. The schedule of DIALOG, U.K. courses is also very intensive. In the period July 1979 to December 1981, DIALOG UK. organised 127 courses. The introductory sessions held initially developed into subject oriented courses. During the period reviewed (2 1/2 years) the following subjects were covered: chemistry (basic and advanced), Business, management and economics, biosciences, engineering, medicine (combining MEDLINE, Excerpta Medica and other biomedical files), humanities, Patents and social sciences. A new course called the Refresher Course started to be very popular. The duration of these courses is rather short: 1/2 day to 1 day. They are intended for experienced users: intermediaries and end-users.

DIALTECH

During the same period from July 1979 to December 1981, DIALTECH organised 71 courses, some of them being of introductory character, others were conducted in conjunction with a particular database producer or in support the EEC Common Language and the introduction of QUESTEL.

ORBIT

The training programme carried out by SDC is more difficult to analyse because of lack of a cohesive training policy. In 1979, SDC moved to PARIS opening a European centre there. The number of training courses in England dropped, increasing again in the 1980's, when again their headquarters moved to England (Reading). SDC organised 66 courses from July 1979 to December 1981. These were mostly 1-day subject-oriented courses. Introductory courses were also popular.

INFOLINE

PERGAMON INFOLINE is a British database processor specialising in scientific and technical information. The service has been available from September 1981 via direct dial, PSS, IPSS and EURONET. The following data bases are mounted on INFOLINE:CASEARCH, the chemical Abstracts file; PATSEARCH, a file of United States patents, COMPENDEX, the Engineering Index, PIRA Abstracts, the abstracts on paper, board, printing and packaging, World Textiles, Management Marketing Abstracts, GeoMechanics Abstracts and Fine Chemicals Directory. INFOLINE is available in Europe and in the United States. The PATSEARCH utilises videodiscs. The eight video discs, available now, contain the front-page drawing of 750,000 patents. In this way, the user can access full bibliographic details including the abstracts via INFOLINE with simultaneous display of the drawing from the video disc. InfoLine organises training courses in Britain and in Europe regularly. It is a promotional exercise.

DATA-STAR

DATA-STAR service started its activities in February 1981. DATA-STAR is a SWISS company, owned by RADIO-SUISSE, but incorporates the software of BRS and the marketing and training expertise of PREDICAST International. The following databases are available on DATA-STAR: BIOSIS-PREVIEW, CHEMICAL ABSTRACTS, EXCERPTA MEDICA, INFORM, INSPEC, MANAGEMENT CONTENTS, MEDLINE, NATIONAL INSTITUTE OF MENTAL HEALTH, NTIS, PHARMACEUTICAL NEWS INDEX, POLLUTION ABSTRACTS, PREDICASTS, PSYCHOLOGICAL ABSTRACTS. Academic users may use the system for a very low price. Indeed the prices of DATASTAR are much cheaper than those of other database processors. It is a competition that will force many processors to close their services. DATA-STAR organises regular training sessions throughout EUROPE.

2. Database producers

In the mid 1970s, the database producers were very active in Britain organising training courses to promote their products. But as database processors have developed subject oriented courses, and in some cases the courses were offered in conjunction with the database producer, it became an unnessary exercise for the database producer to be involved independently in organisation of online training courses. Some commercial firms organise training courses on which they invite database producers. It is a very good and cost-effective arrangement, beneficial for both sides. From July 1979 to December 1981, database producers organised 44 official courses in Britain. INSPEC and BIOSIS had a rather modest programme. PREDICASTS and CAB also offered a number of courses. Some courses were given by RAPRA, GEOSYSTEMS and PIRA.

3. Database producers and database processors

UKCIS

UKCIS together with the Royal Society for Chemistry developed a number of specialised courses. They can be classified as database producer and spinner. The programme developed by them is very helpful for the intermediaries, but even more appreciated by end-users.

4. Network coordinators

EURONET/DIANE opened in 1980 and this development was marked with intensive training activity on their databases. The most active was DATASTAR. Out of it 23 courses, 4 introductory and 6 advanced were held in LONDON and one in Stirling. Centre National d'Information Chimique in cooperation with UKCIS ran a joint course on MISTRAL and CBAS structure. Dimdi organised 2 courses and SPIDEL 1 course in London.

5. Academic institutions - British Universities

ONLINE searching in British University libraries has been developing since the early 1970s. The situation in 1978 was surveyed by Ackeroyd and Foster. Hoare interviewed university library members on their current online activities. Wood and Lodge gave results of their survey of 14 university libraries and interviewed 30 intermediaries in 1981. The average number of courses attended was 3.5 for medical librarians and 1.5 for all others. The table below gives the courses attended by intermediaries:

COURSES	Number of intermediaries
DIALOG introductory	15
Online user group	8
BLAISE MEDLINE	7
BLAISE introductory	6
DIALTECH beginners' course	6

All other courses were attended by 5 intermediaries.

Training at the University of London

Offered courses:

Online information services	- background training for librarians delegated by libraries
Courses concentrated on command languages: ORBIT, ELHILL, DIALOG	- usually one command language and few databases. Course for librarians and end-users
Courses on data bases covering one subject area.	- Course for librarians and end-users. One command language, few databases. Course for experienced searchers

There were 54 courses organised during the period August 1976 - July 1981. 593 persons were trained, from this 402 librarians (inf. specialists) and 191 end-users.

CIS did not charge for the courses at the beginning. At a later stage CIS started to charge the university librarians for online time and telecommunication . During the last year, it was possible to get specialised tuition in online searching tailored to the particular user needs. There is also a scheme of apprenticeship. CIS believes that to train an intermediary in proper searching is a long job of 3-6 months, depending on the ability of a person. Travelling workshops for end-users have been organised for a long time by CIS in the frame of a travelling workshop, these were supported by the British Library Research & Development Department for 1 1/2 years.

6. Library schools

Several library schools (College of Librarianship, Wales, Polytechnic of North London and Ealing College of Higher Education) announced online courses aimed at the professional librarians and information workers.

However, the main aim of the library schools is to educate the future librarians. They do not intend to create competence in online searching but just awareness and understanding of the whole process. The British Library Research and Development Department encouraged the library schools to include teaching of online and such schemes have been developed.

Teaching methods at library schools include introductory lectures with film, tapeslide or videotape presentations. Several schools developed their own search packages. Formal meetings and workshops have been organised among the school representatives to allow exchange of experience.

7. Online user groups

This is another UK organisation existing since 1981. Besides of a national group there are also regional user groups both being very active in online training.

8. Professional associations

ASLIB, IIS and the LA coordinated their efforts to organise online training courses and meetings. One day exchange of experience started to be very popular.

The results of the survey

In the survey conducted by Stella Keenan and Alina Vickery over 400 intermediaries were questioned about the usefulness of online training courses and the preferred methods of teaching. The attendance at formal training courses is given in the Table below:

Training courses	attendance (%)
organised by processors	47
producers	18
institutions giving services	14
processors & producers	8
prof. organis.	6
library schools	3
other	4

The respondents had the choice to rank attended courses by asigning one of the following:

A for very good courses;
B for good courses;
C for adequate courses;
D for poor courses, and
E for very poor courses

Grading of courses

Grade A	
Institutions giving services	39%
processors + producers	26%
processors	23%
Grade B	
processors	49%
producers	48%
processors + producers	42%

The highest proportion of D ranking was given to professional organisations.

9. A typical intermediary

It could be interesting to present a possible profile of a British intermediary (as obtained from the survey in 1981):

He or she is most likely to have a first BSc or BA qualification in science obtained in 1965 at one of the British universities. The second qualification would probably be a diploma, MA or MSc in librarianship or information science obtained in 1972 at Sheffield, City of London or London University. If he or she has a third qualification, it will be most probably in librarianship or information science obtained in 1974. He or she has now an average of 9 years' professional experience, working as librarian (reference) or information officer/scientist in industry, commerce or a research institution. His or her experience in online searching is 5 years or less, and it could be the first or already the second job of this kind. He or she searches online on average 1.30 hours/week and is involved for another 4 hours or more in work related to online searching. He or she used probably only BLAISE, or only LOCKHEED, or a combination of these two systems. His or her initial training consists of one formal course organised by the processor or producer, discussions with colleagues and self-training. He or she considers as most useful the following training aids: instruction manual by itself or in combination with hands-on experience and with discussions with colleagues by itself.

References

1. KEENAN, S and VICKERY, A
Training requirements for online intermediaries.
BL R&D Report No.5724, 1982, 164 p.

ONLINE EDUCATION ROUND THE WORLD:
THE USE OF ONLINE INFORMATION RETRIEVAL
IN AUSTRALIAN INSTITUTIONS OF HIGHER EDUCATION

Nancy Fjällbrant

Chalmers University of Technology Library, Gothenburg, Sweden

1. Introduction

The last twenty years have been characterized by tremendous advances in computerized storage and processing, together with improvements in telecommunicaton methods.[1] These have led to revolutionary changes in ways of storing and handling information - with the development of easily accessible international and national information systems containing hundreds of databases, the advent of the electronic journal, electronic 'knowledge banks', and direct document delivery systems.[2, 3] These developments in digital processing, storage and transmission are of paramount importance to Australia situated at a large distance from many information producing intensive areas, and with considerable internal distances between the various urban areas. The development and use of computerized information retrieval methods is therefore of particular interest in Australia.

How are the Australian academic libraries responding to the challenge of teaching students how to use the computerized information services?

In 1981, a survey on the teaching of computerized information in Australian University and College of Advanced Education Libraries was carried out. The aim of this survey was to provide information about the availability of instruction, the methods and media used and the extent of evaluation, together with future plans.

This paper will briefly describe the development of online services in Australia, and their use in institutions of higher education. Methods used for the survey will then be described, together with the findings.

2. The development of computerized information retrieval in Australia

Computerized information retrieval was introduced to Australia in the form of batch processing of SDI services such as MEDLARS, BA Previews, CA Condensates, INSPEC, Science Citation Index and Social Sciences Citation Index, ERIC, Food Science and

Technology Abstracts in the mid 'seventies. In 1977, AUSINET was launched with a consortium of 11 users. The Overseas Telecommunications Commission (OTC) introduced the Multimode International Data Acquisition Service (MIDAS) in 1979 and this led to a rapid increase in the use of online bibliographic services in Australia. The use of MIDAS, which leads to reduced telecommunication costs facilitates the transmission of information from U.S.A. based IR services such as the DIALOG Information Service and Systems Development Corporation's ORBIT. Since April 1979 MIDAS has shown a growth of approximately 10% per month. In the first 6 months of 1981, the numbers of registered corporate users of MIDAS increased from 205 to 310, and the "information retrieval" users increased from 375 to 475. (Judge, 1981).[4] Connect time for use of MIDAS, by December 1981, was over 3.000 hours per month. The introduction of MIDAS has led to a marked reduction in the import of overseas tapes to Australia (only MEDLINE and BA Previews are now in general use) and a rapid rate of growth in the use of online services .

A number of commercial information services, such as AAP - Reuters MONITOR system, Control Data Corporation's TECHNOTEC, are available in Australia and national systems are being developed such as CSIRO's Division of Land Use Research ARIS - Australian Resources Information System. Numerical databases in science and technology are also provided by CSIRO in thermodynamics, crystallography and mass spectra.

3. Use of online information services in Australian University and Institute of Technology Libraries

Many users get their first introduction to computerized information retrieval in an institution of higher education - a university, institute of technology or college of advanced education. In 1981, Wood carried out a survey on the use of bibliographic retrieval services in 19 Australian universities and 5 institutes of technology.[5] Wood found that out of 19 universities and 5 institutes of technology examined, all but one now accessed online services, with DIALOG, the Australian Commonwealth Department of Health, SDC's ORBIT and the Australian Information Network being the services most frequently used. Searches were available for academic staff and postgraduate students at all 24 institutions but for undergraduates at only 19. A limiting factor in the development of online searching in the universities and institutes of technology was the lack of terminals - most of the libraries had only one or two terminals for online searching.

Wood investigated the charging policies employed: the majority of institutions charge users (4 exceptions), but full cost recovery was employed only for external users, such as industrial companies. Promotion of the use of the online services was carried out by a variety of means: posters, printed handouts, brochures, demonstrations, at the reference desk and by "word-of-mouth" from previous users. Some form of evaluation of the use of the online information retrieval services had been carried out at about half the institutions providing these services, but response rate has often been low. Detailed evaluation had, however, been carried out at the Australian National University over a period of one year (July 1980 to June 1981).

4. Survey of Teaching of Computerized Information Retrieval in Australian University and College of Advanced Education Libraries

4.1 Methods of data collection

A postal questionnaire was sent out to 88 institutions (20 universities and 68 colleges of advanced education). The institutions were selected with the help of the Directory of Australian Academic Libraries first edition 1978 and 2nd edition 1981. The 1981 edition of the Directory contains details of 470 main and branch libraries belonging to universities, colleges of advanced education and colleges of technical and further education (TAFE). The latter group has not been examined in this survey.

The questionnaire was designed to provide information about the volume of teaching - number of courses given, length of each course, and number of participants was requested. The methods and media used for instruction were examined, together with the forms of evaluation carried out. Finally an outline of any future plans for development in this area was asked for. The questionnaire also included a request for information about the size of the library in terms of holdings, and study places, and the number of undergraduate and postgraduate students at the institution of higher education. The respondent's name and telephone number were requested, so that any information which was unclear could be clarified by a telephone interview.

Response to the questionnaire was high, after a reminding letter, and, in some cases a telephone reminder, 20 of the 20 universities replied (100%) and 63 out of 68 CAEs (93%). In a few cases replies to the questionnaire were made by telephone, to avoid delays caused by a postal strike. The initial information obtained from the questionnaires was verified and supplemented by telephone interviews, and discussion meetings with people responsible for reader education in 11 institutions. (These interviews took place in connection with a conference and workshop on reader education, held at Caulfield Institute of Technology, in 1981).

Visits were paid to the following 8 university libraries:

Australian National University (Austalian Capital Territory)
University of New South Wales (New South Wales)
University of Adelaide (South Australia)
La Trobe University (Victoria)
Monash University (Victoria)

University of Melbourne (Victoria)
Murdoch University (Western Australia)
University of Western Australia (Western Australia)

and 10 College of Advanced Education Libraries:

Kuring-gai College of Advanced Education (New South Wales)
Ballarat College of Advanced Education (Victoria)
Caulfield Institute of Technology (Victoria)
Footscray Institute of Technology (Victoria)
Frankston State College (Victoria)
Melbourne State College (Victoria)
Royal Melbourne Institute of Technology (Victoria)
Rusden State College (Victoria)
Swinburne Limited (Victoria)
Western Australian Institute of Technology (Western Australia)

The institutions selected for visits and interviews (a third of the total number of universities and colleges of advanced education) were representative of a wide variety of institutions - from the early established university - the University of Melbourne - to the new Murdoch University, the Institutes of Technology, such as the Western Australian Institute of Technology to Colleges oriented towards teacher education programmes such as Frankston State College. Visits were concentrated to Victoria for practical reasons, but institutions in Australian Capital Territory, New South Wales, South Australia and Western Australia were also visited.

4.2 Results

4.2.1 Undergraduate courses

The use of computerized information retrieval is being taught, to undergraduates, in 1981, at 7 universities and 7 colleges of advanced education, either as a separate entity, or as part of a more general course on methods for finding information. At Monash University, Hargrave Library and the Biomedical Library courses on computerised information retrieval are offered to undergraduates. At the Biomedical Library students will be taught to use MEDLINE in connection with projects in paediatrics in an experimental programme. The Australian National University gives one hour of instruction in computerized IR for some undergraduates. At Deakin University and James Cook University of North Queensland, this forms part of the general course in information retrieval. Some universities such as Sydney University and the University of New England provide short demonstrations on online information retrieval for undergraduates. At Macquarie University, N.S.W., the course in analytical chemistry for undergraduates contains a MEDLINE search session, and the fourth year chemistry honours course includes instruction in profile writing.

7 of the colleges of advanced education said that they provided formal courses in computerized information retrieval for undergraduate students. These courses were all of 1 hours duration, with one exception - the Royal Melbourne Institute of Technology gave a 6 hour course for undergraduates in applied chemistry and the health sciences. This was attended by a total of 40 students per year. Other CAEs such as the Western Australian Institute of Technology and Frankston State College provided instruction in profile writing. The CAEs most active in providing undergraduate instruction in online information retrieval were the Institutes of Technology or institutions teaching the health sciences.

4.2.2 Postgraduate courses in information retrieval.

The term postgraduate, as applied to all the institutions for tertiary education in Australia, is somewhat ambiguous. This term includes doctoral and masters students at the universities and diploma students at some of the colleges of advanced education. This makes interpretation of the data collected more difficult for this section.

9 of the universities provided formal courses in computerized information retrieval for postgraduates. In 4 of the above 9 cases, this was in the form of a combined course in manual and computerized IR. In other universities, demonstrations of computer searches were sometimes given, either in connection with the manual IR course or as separate entities. The postgraduate courses tended to be somewhat longer than those given for the undergraduates - average length 1 1/2 to 3 hours. The longest course was at Macquarie University, N.S.W. - 6 hours.

Relatively few of the CAEs gave formal instruction in the use of computerized information retrieval for postgraduates. (9 out of the 62 respondents). The formal training offered was, in all cases, 3 hours or less.

4.2.3 Methods and media used for teaching computerized information retrieval

The methods and media used for teaching computerized information retrieval in the 22 libraries (11 universities and 11 colleges of advanced education) which provided this form of instruction were studied and the findings are presented in Table I.

Table I Methods and media used for teaching computerized information retrieval

Teaching method or media	No. of libraries using given method
Lecture	9
Seminar	15
Demonstration-online	22
Demonstration-recorded	2
Tape/slide	2
Film	0
Video	2
Mediatron	0
CAI	0
Printed media:	
from database producer	7
systems operators	7
compendia	3
textbooks	1
Demonstration of user's 'own' search	16
User carries out 'own' search	3
Profile preparation	3
Brochures etc.	6

As can be seen from Table I, all the 22 libraries which provide formal teaching in computerized information retrieval make use of online demonstrations. Seminars or lectures are used to introduce the subject of computerized information retrieval. Some use is made of printed handouts, these are material produced by systems suppliers - 7 libraries, or database producers - 7 libraries. In 16 of the 21 libraries students see a demonstration of a search within their own area of interest. At Riverina College of Advanced Education and at Nepean College of Advanced Education students are allowed to carry out their own search at the terminal. This has also been experimented on at Monash Biomedical Library, where MEDLINE searches have been available in connection with pre-clinical studies. This is now being extended to computer searches in connection with assignments in paediatrics. At a few institutions students have written profiles - examples are Macquarie University, the Western Australian Institute of Technology and Frankston State College. Searches have subsequently been performed by an intermediary. Little or no use has been made of audio-visual methods or computer assisted instruction in the teaching of computerized information retrieval.

4.2.4 Evaluation of the courses in computerized information retrieval

Of the 22 libraries which gave courses in computerized information retrieval, only 4 had attempted any form of evaluation, in 3 of these cases the evaluation was carried out by means of informal discussion. At Macquarie University, the honours undergraduates in chemistry prepared a profile for a retrospective search and this work is included in their course assessment.

4.2.5 Future plans for reader education

A number of institutions planned to introduce or increase instruction in the use of computerized information retrieval. Examples are: the Australian National University - planning demonstrations of online searching for undergraduates; Monash University Biomedical Library planning use of MEDLINE in connection with undergraduate medical projects; Monash University Hargrave Library for physical sciences and engineering; Wollongong University plan to introduce instruction on online systems; Caulfield Institute of Technology, Darling Downs Institute of Advanced Education, Preston Institute of Technology, and the Warrnambool Institute of Advanced Education were all planning to introduce instruction, and Nepean College of Advanced Education and Riverina College of Advanced Education were planning to increase their instruction in this area.

5. Discussion

In 1981, Wood concluded that "online services in Australian University and Institute of Technology Libraries are still fairly much in the developmental phase -particularly in relation to use, promotion and evaluation." We can, however, expect a rapid growth in the use of computerized IR systems in Australia. The proposed development of AUSTPAK - packet switching network by the Australian PTT will further reduce transmission costs, and increase use.

In 1981, relatively few universities and Colleges of Advanced Education provided courses in computerized information retrieval. A positive attitude to the use of online services was particularly apparent in universities and colleges teaching medicine, health sciences, science and technology. The development of ABN - the Australian Bibliographic Network [6], with interfaces such as BIBLION at the Barr-Smith Library, University of Adelaide [7], will lead to a general awareness of the possibilities of online searching both in library catalogues and in national and international databases. It is therefore very important to develop material and methods for teaching end-users how to make use of the available online services in Australia.

In 1981, not many of the libraries of institutions of higher education, (14 out of 83 respondents) provided orientation or training in the use of computerized information retrieval services for undergraduates. Even for postgraduates, relatively few libraries (18 out of 83) provided online education. Development of this type of user education, was being hindered, in a number of cases, by lack of equipment such as terminals or microcomputers. Evaluation of the existing programmes was limited to a very few institutions, and in most cases the evaluation had been carried out by informal discussion with participants. Education in the use of computerized information retrieval systems, would appear to be that area of reader education, where rapid development can be expected in the next few years. It is important to plan and coordinate activities, so as to save unnecessary duplication of expensive teaching programmes. A number of the Australian schools of librarianship and information science are, at present, actively concerned in the development of instruction in online information retrieval methods for intermediaries, perhaps some of the material being developed could be adapted for use in teaching end-users. The teaching programmes, methods and media for teaching computerized information retrieval, should be submitted to careful and well-planned evaluation.

References

1. Technological change - impact of information technology. Canberra, Australian Government Publishing Service, 1981. 188 pp.
2. Knowledge base program. An information transfer system in biomedicine. National Library of Medicine, Fact Sheet, May 1980. Bethesda, Maryland, NLM, 1980.
3. FALKENBERG, G. (Article on knowledge bases to be published in IATUL Proceedings, Vol. 14, 1982).
4. JUDGE, P. "Information retrieval in Australia." Paper presented at the VALA National Conference on Library Automation - Meeting the Challenge of Technology, 16th-18th November, 1981, University of Melbourne, Australia.
5. WOOD, F. Online bibliographic retrieval services in various Australian tertiary institutions: trends in the scope and nature of online searching and an evaluation of patron satisfaction ANU Library Occasional Paper. Nr. 2, Canberra, Australian National University, 1981.
6. BASKIN, J. "ABN: a brief overview of its history, current developments, issues and future directions." In: Gerard Peguero (ed.) The Networks and ABN; where to now? Proceedings of a National Seminar, Footscray Institute of Technology, 20 November 1981. Melbourne, Footscray Institute of Technology, 1982, pp. 47-69.
7. ANDERSSON, J.R. "ABN and the Barr Smith Library." Cataloguing Australia, Vol. 7 (1981) pp. 74-78.

ONLINE EDUCATION ROUND THE WORLD: THE NETHERLANDS

M. Skaliks

Twente University of Technology, Enschede, The Netherlands

In the Netherlands there are a number of possibilities for training in the field of online information retrieval.

VOGIN - COURSE

UNIVERSITY LIBRARIAN COURSE
(POSTGRADUATE)

GO-C COURSE
(SCIENTIFIC LITERATURE SEARCHERS)

BDA'S:
LIBRARY AND DOCUMENTATION SCHOOLS

Fig. 1 Online education in the Netherlands

First I would like to tell you something about the most complete course we have in Holland. It can be attended by anyone who wants to participate. There is of course a fee. Most students, however, are employees of libraries and information centres who, in the near future, either have to work with a terminal themselves or have to act as intermediaries for end users or have to do both, and who do not have any, or hardly any experience in this field.

The course has been organised since 1978 in cooperation with VOGIN, the Dutch organisation of users of online information systems and COBIDOC, the committee of bibliography and documentation and its aims at teaching people how to gather documentary information by means of a computer which may be entered via terminals.

During the lessons the students are not restricted to learning how to use only one system because the course is rather general in character and all possibilities are dealt with. Moreover the students get plenty of time for practical training.

The course takes five days and is given twice a year. The number of students is limited: only twenty may attend. On the first day, by way of general introduction, the students are told something about the possibilities of automated documentary information, databases, databanks and networks. Also several computer systems are compared, command languages are mentioned and demonstrations are given. This first day may also be useful for managers and employees of libraries and information centres who have to decide upon the purchase of a terminal or who want to be informed about the consultation of automated documentary information systems. It is also useful for teachers of literature searchers. After the day of introduction four days are spent dealing with the above mentioned subjects in a more elaborate way and close attention is paid to hands-on training, the technical working of the computer systems, the output evaluation and the organisational and financial aspects. This course costs f 675.--, including refreshments and lunches and the course book entitled "Introduction to online searching (to online information retrieval)" which should be read before attending the course, because the lectures deal with their subjects in depth. For those who already have some knowledge of online searching (online information retrieval) it is possible to attend the course without the day of introduction.

For those who are interested in online searching (online information retrieval) but do not need any training in using a terminal it is possible to attend the introduction only. This day can be attended by 80 persons and the costs are f 125.-, including refreshments and lunch. For those attending the introductory session who want to gain some practical experience a special day is organised for practical training. On this day the students only work with Euronet and the basic commands of the Common Command Language (C.C.L.) and they are taught how to carry out searches in some databases relevant to his or her discipline. It is also possible to attend the practical training day only.

This may be useful for those who, in one way or another, have gained some knowledge of online searching (online information retrieval). In this case only 20 persons can participate. The costs of the practical training day are f. 150.-. The costs of the day of introduction and the practical training together are f. 250.-, again including refreshments and lunch.

As the number of people who can attend is limited, participation depends on the order of enrolment. The applicants will receive confirmation of their place as soon as possibly together with an account.

Further courses in the field of online searching are part of other general librarianship training. In this respect we can mention the training for University Librarian at Amsterdam University.

This is a postgraduate professional training designed for functions in scientific, general and special libraries for example a subject librarian.

The course can be either for one year (2 days a week) or 2 years (1 day a week).

There are two fields of study:

A) Knowledge of books and library science from a historic point of view

B) Library and document science from a technical point of view.

Students in the field of study A only receive demonstrations in the field of online searching whereas students in the field of study B attend 10 hours of lectures and 2 days practical experience. This is about 5 percent of the complete course. The program is comparable with that of the VOGIN-course.

Then there is the training for scientific literature searches (GO-C. Joint Organisation for Training type C). This is a higher professional training and is usually suitable for those who are already employed in libraries and documentation centres.

The course lasts a year at one day a week. During this training the students attend the VOGIN-introduction day and, if they wish, the practical training day as well.

It is strongly recommended to follow the complete VOGIN-Online course.
Finally there are the BDA-courses (BDA = Library and Documentation School).

There are three year courses in library science for officials (on a intermediate level) who only in the third year will specialize as librarians in public, music and school libraries or as youth librarians or documentalists.

The field of online training commences in the second year when the student attends 5 hours of lectures and has one practical training day.

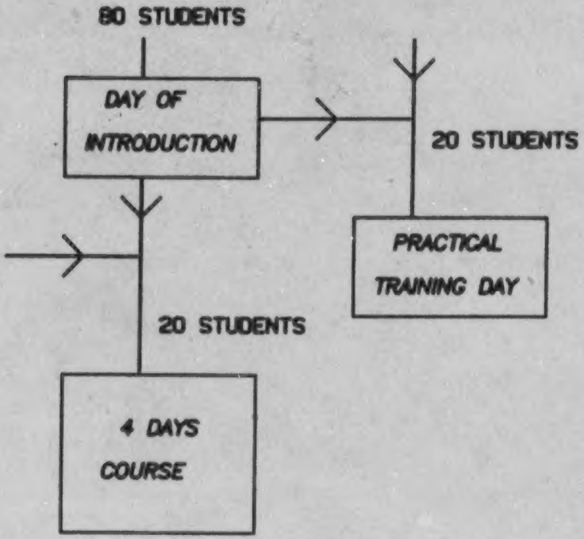
Only one command language namely QUEST is used and the teacher will provide exercises during the practical training.

In the third year there are 2 hours of lectures and 1 day practical training in which DIALOG is dealt with in connection with the large number of databases on Lockheed Information Systems (LIS).

The specialized training for documentalists has 7 hours of lectures and 2 days practical training in which the Common Command Language will be used. One part of the practical training consists of prescribed exercises and the other of independent searching for special articles or a report.

I hope that I have been able to give you a satisfactory survey of the online training in the Netherlands and I shall be pleased to answer your questions. Thank you.

VOGIN ONLINE COURSE


80 STUDENTS
DAY OF INTRODUCTION
20 STUDENTS
PRACTICAL TRAINING DAY
20 STUDENTS
4 DAYS COURSE

VOGIN COURSE PROGRAM

DAY OF INTRODUCTION:
- GENERAL INTRODUCTION
- DATABASES AND SYSTEMS
- SEARCHING
- SEARCHING POSSIBILITIES

FOUR DAYS COURSE:
1. BASIC COMMANDS
2. FINANCIAL ASPECTS
   COMPARISON OF SYSTEMS
3. COMPARISON OF DATABASES
   SEARCHING STRATEGIES
   DEMONSTRATION OF *STAIRS*
4. TECHNICAL WORKING OF COMPUTER SYSTEMS
   RESULTS AND DISCUSSION
   DATABANKS
   VIEWDATA

ONLINE EDUCATION ROUND THE WORLD: WEST-GERMANY

Elizabeth Vogel

University of Konstanz, Konstanz, West Germany

I want to talk about the following aspects of training in the field of online searching, as it exists within the Federal Republic of Germany at the present time. I will restrict myself to the academic education as I only know the state of training in that field.

Before I can give you a report on the state of training programs in online searching let me show you the institutional frame work in which online searching training in academic institutions is possible.

I. The structure of the educational field within the area of information and documentation

There are essentially two levels of education in that field: university courses and college level.

1. University study programs that offer a degree in either
   a) Information Science or
   b) Library Science

   Mostly it can be studied as a major, but also as a minor subject in combination with other subjects. The studies lead to a university degree after four years. In one case postgraduate study is possible lasting two years.

2. Technical college level with four alternative directions
   a) integrative education for library-information-documentation
   b) degree as a librarian for public libraries as well as scientific/technical libraries (traditional pattern)
   c) degree in medical documentation
   d) degree as an archivist

   These studies, of three years of length generally, lead to the respective diploma degrees, but there are also shorter studies which lead to a degree called "assistent".

II. The state of training in online searching within the different educational fields and structural levels

1. University level

University studies (doctoral degree of MA) are available at a number of places. The major differences between the university programs are, on the one side the organizational structure, and secondly their specialization.

a) Information Science

At Berlin University Information Science belongs to the field of Communication Science. An important factor in its online training is their own databank system RIQS (Remote-Information-Query-System) that has been bought from the "Vogelback Computing Center".

With its help the following tasks can be simulated and learned in an integrative manner:
- methods for the construction and use of individual information retrieval databanks
- methods for online searching in the self-implemented databanks

There is much emphasis on the practical exercising done by the students on their own within but also outside the courses.

Despite the fact that the system RIQS does not possess all characteristics usually given to online services (for example truncation, online-thesaurus, search with weighted terms or marking in indexes) it does provide the essential elements for online searching in real surroundings and teaches the pattern in an exemplatory way, as the training results show.

In Düsseldorf, Information Science is in the faculty of Philosophy.
Training in online searching also is practised on an university-owned retrieval system GOLEM.
For training aspects no commercial databanks are in use, however, there exists the faculty-run philosophical databank.

In Saarbrücken Information Science is also in the philosophical faculty. The training is intensively practical and up to now is on commercial databanks. It is planned to use the free commercial databanks, offered by the Society for Information and Documentation (GID), an institution for research in the field of information and documentation of the state.

In Regensburg Information Science is located within Linguistics. The emphasis is upon linguistic questions. There is no online retrieval training.

In Constance Information Science is part of the faculty of Social Sciences, being especially related to the field of politics and administrative sciences.

The Constance Information Science Program gives more special emphasis to the technological and information management aspects when compared to other German courses.

In part III I give an overall view of the Constance program and experiences with the use of commercial databanks for training purposes.

b) Library Science/Book Science

In Cologne and also in Mainz there is much emphasis on theoretical science. In Mainz there is also a very historical orientation. Online retrieval is neither theoretically or practically studied.

Summary

The form and structure and relevance of online training in the respective study programs for the students, has to be seen in the close relationship to the organizational linkage with the particular faculty to which it belongs and therefore the specific course emphasis which results.

As shown, these are rather different and at this point of time no universal, general development of online training is in sight.

2. Technical College level

In the following I restrict myself to the central institutions within the area of information and documentation. These are the integrated education programs in the field of library, information and documentation studies, librarian training and medical documentation training.

The many institutions make it impossible to present all of them individually, but Figure 1 presents an overview of course availability.

a) Integrated education library-information-documentation

The online retrieval training in this area can be considered as advanced. There are extended practical courses in commercial databanks which are likewise embedded in instructing of the corresponding theoretical knowledge.

It is planned on the one hand, for beginners to use databanks provided by the Society for Information and Documentation, on the other hand, to develop simulation models for beginners.

a) **INTEGRATED LIBRARY-INFORMATION-DOCUMENTATION (BID) EDUCATION**
(degree Dipl.Dok., Dipl. Bibl.)

- FRANKFURT
- HANNOVER
- STUTTGART

b) **LIBRARY EDUCATION**
(degree Dipl. Bibl.,Bibl. Ass.)

- BERLIN
- BONN
- FRANKFURT
- HAMBURG
- HANNOVER
- KARLSRUHE
- COLOGNE
- COLOGNE
- MUNICH
- MUNICH
- STUTTGART

c) **EDUCATION IN MEDICAL DOCUMENTATION**
(degree Med.Dok.)

- GIESSEN
- ULM

d) **EDUCATION AS ARCHIVIST**
(degree Arch.)

- MARBURG
- MUNICH
- MUNICH

Fig. 1 Library / Information Documentation Education at Technical College Level.

b) Librarian training

Here, if at all, online retrieval training is only carried out on a small scale, or as demonstrations, or it will be dealt with theoretically in such a way so that students know about the existence of online retrieval.

For librarians online retrieval is often mentioned as an unimportant topic and only with reference to the area of documentation. There appears to be little difference between the institutions training people for either public or scientific libraries.

In this field online retrieval is of high importance. Especially in Ulm an intensive training is given closely linked to problems related to professional practice.

c) Medical documentation training

d) Education in archives

Summary

Also at the technical college level there exists no universally valid standard of online retrieval education. There is an evident lack in the training in the field of librarianship compared with the training provided in the field of documentation. It thus appears that the field of librarianship in West-Germany is still very traditional in its practice.

III. Information Science at the University of Constance

Information Science offers postgraduate studies, but can also be studied as an option during the regular university degree program during the first and second year in the study of Social Science.

Within the two year postgraduate course as well as within the first and second year in the field of Social Science, online retrieval training is offered as a half year course.

Since the postgraduate program will not start before the winter term of 1982/83 no experiences can be given here. Nevertheless, it promises to be interesting since there might be greater motivation as well as knowledge already aquired by work on other courses.

Students of the postgraduate program are expected to have finished their graduate program in related fields or in any sciences where information processes are dealt with professionally.

The postgraduate course will enable graduates to work as information managers in public and private administrations, as information officers and information brokers in information systems or as information scientists in general. The study program includes a doctoral program as well as a degree program (Master of Science) in Information Science.

Therefore, an intensive, practical and theoretical education oriented to the needs of the working surroundings are of great importance.

The practical education (one term long) is embedded in the theory that is oriented to the above mentioned aims of the information scientist as well as the more practical oriented information manager and information broker.
This includes on the one side the construction of databanks and the knowledge of data bank systems, implementation and handling which allow reference and fact retrieval, and on the other side the planning and construction of information services.

Practical knowledge in online retrieval will be gained by the use of the big, international hosts and databanks.

The choice of hosts and databanks is usually up to the students according to their special interests. This is due to the fact, that no common background can be expected. However, some knowledge or interest at least is necessary to conduct a search in order to develop a search strategy and to assess the output.

The choice of the retrieval language is then oriented to the databanks to be used according to the above mentioned criteria of knowledge and interest.

The students in the first and second year of Social Sciences have learned so far the retrieval language BRS, since with BRS access is possible to most databanks in the field of the Social Sciences (DATASTAR).

The future students during the postgraduate program will learn DIRS 3, since it represents the most widespread retrieval language.
Since one of the study goals - as far as theory is concerned - will be the comparison of different retrieval languages, a second language will be learned - according to the subject knowledge of the students, reached during their graduate studies.

The assessment following the online searching will be an important part during class. Only if this is achieved can search strategies be optimized and the effectiveness of languages as well as databank contents can be judged.

Class work will be done in groups (2-3 persons each). To the structure of the course: The introductory session covered functions of the BISY-terminal, the formulating of the search, and its terms and search strategy, databank structure and thesauri.
The next three lessons were devoted to exercises.
After that, assessment and reformulating of the search was done. Each student had, in average, one training lesson.

For the students of the postgraduate program it is planned to start at once with the practical retrieval lessons, whereas theory will be provided during classes when needed.

This way, the student will have more time for the practical exercises and thus be given a more effective knowledge due to the strong interaction by learning practically.

Concerning the costs: For the practical training lessons for about 40 students costs are about 1400$ (DATASTAR). Per participant costs are 35$ each.

Considering Constance University with respect to the situation in West-Germany, the costs for training on commercial databanks are as follows:

- For a number of German databanks offered from German hosts no royalties will have to be paid since they will be provided by the Society for Information and Documentation
- There is a deficit in the subject coverage of social sciences and economics in the German online databanks that are available. In these areas we will rely further on international hosts which will result in high royalties and expensive costs for data transmission
- The training databanks of the international hosts, clear of charges, are praiseworthy facilities, but contain insufficient data records; the retrieval results are discouraging
- The costs for data transmission were reduced enormously with the new service of the German postal service DATEX-P. For comparison see Figure 2.
- That means:
  The utilization of free databanks of the Society for Information and Documentation is very cheap; only the DATEX-P-costs are to be paid, about 3$ per hour. These databanks only cover the field of general natural sciences. For students of this field a training in commercial databanks from the beginning of training is possible.

  The training of students of the very special natural sciences (for example Chemistry) and the social and economical sciences remains expensive.
  A home-owned training system on microcomputer or computer basis is desirable. One effect would be too: remove the restraint in learning caused by the pressure of time and cost.

A. DATEX P	(873 SEGMENTS AND 3 CONNECTS)		
U.S.A. (TELENET/TYMNET)		$	12,85
		DM	32,12
WITHIN EUROPE (EURONET)		$	4,45
		DM	11,12
WITHIN WEST-GERMANY		$	2,90
		DM	7,23
B. EURONET	(873 SEGMENTS)		
		$	13,60
		DM	34,00
C. TELENET / TYMNET			
		$	54,10
		DM	135,15
D. TELEPHONE NET WITHIN WEST - GERMANY			
UP TO 50 KM		$	7,40
		DM	18,40
UP TO 100 KM		$	16,60
		DM	41,40
MORE THAN 100 KM		$	27,60
		DM	69,00

Figure 2 Costs of data transmission per hour within networks

IV. The future outlook

Altogether, in West-Germany there is a broad spectrum of online retrieval education concerning Information Science and the integrated programs library-information-documentation: Training with house-owned simulation models or commercial databanks. But in the field of librarian training programs a lack of development exists.
New initiatives are expected from the activities of the working group of training and advanced training institutions (AG-AFE), which sent me to this conference too. It is planned to have:

- retrieval training for the instructors, especially intended for such institutions without any retrieval training up until now
- donation of some commercial databanks, which are offered by German hosts
- donation of data material for the building up of house-owned retrieval systems on micro computers or computer basis.

ONLINE EDUCATION ROUND THE WORLD: REPORT FROM DENMARK

Betty Wedel

National Technological Library, Lyngby, Denmark

In Denmark online education began in 1975 at the National Technological Library of Denmark. The documentation department became, in 1974, centre for the ESA-RECON system, today ESA-QUEST or ESA-IRS, whatever you like, and a leased line terminal was placed in the library, where it still is today, only now it is a more modern type. We also bought monitors so we could have 20-30 people watching online searching on the screen, and for about 2 years we used taped literature searches in order to save money, but we were then allocated free passwords for demonstrations and education of students. After that we have always used the real live system and find no reason to invest time and money in computerized education and training. This has been a very good investment for ESA-IRS, as this facility has promoted the use of ESA-IRS in Denmark. As a spin-off it has also promoted the use of the DIALOG-LOCKHEED system, being the big brother of the ESA-QUEST system.

In the first years we had mostly demonstrations. We made, however, the discovery that people want to try for themselves and changed the demonstrations to online courses and developed a 3 hour course which is more or less the type we use today.

It is my sincere belief that this online technique is so strange and unbelievable that unless you try it for yourself, you will not understand it well enough and you will not gain confidence in the idea of computerized information retrieval.

For me, as a teacher, I still share the amazement and joy of the beginner when he/she tries the system, sees it working and all of a sudden relevant references come pouring out. Usually I hear the words - "It's a fantastic system!"

We have different kinds of courses. (See Fig. 1)

Online education	Duration
BEGINNERS	3 HOURS
ADVANCED	1-2 DAYS
STUDENTS (TECH UNIV)	1-2 DAYS
STUDENTS (OTHER)	3 HOURS
DATABASEPRODUCERS	FROM 1/2 DAY TO 2 DAYS
DEMONSTRATIONS	FROM 1/2 TO 1 HOUR

Fig. 1

'Beginners' are open to everybody. 'Advanced' are mostly for online users who have worked at least about 6 months with online searches. 'Students (Tech Univ)' are for our own university students, the one-and-a-half-day is part of a so called module, the library module (one-week-and-a-half), which gives credit (3 points) and is part of the regular university studies. 'Students (other)' are all other students who get the beginners course.

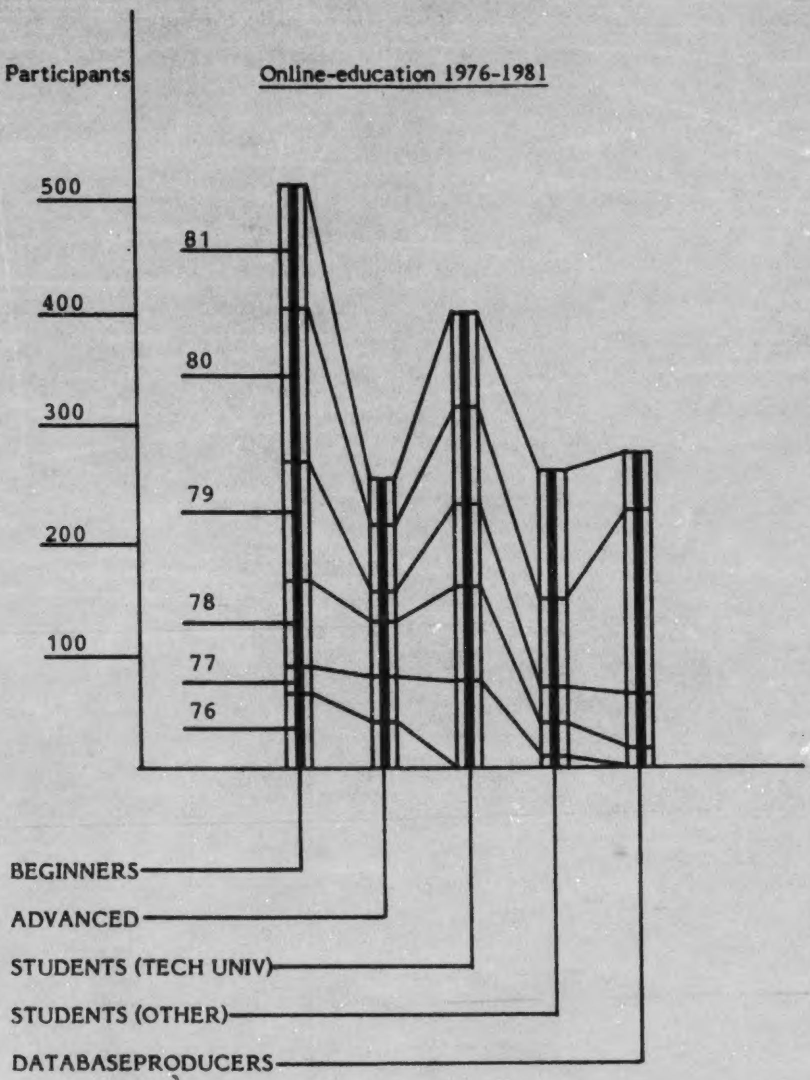
'Databaseproducers' courses are entirely in the hands of the different hosts and database owners, sometimes they are given without charges but mostly they cost money.

EURONET DIANE

Because of the hastily growing number of courses from these database people, and because the online user needed more and more help, it was decided to establish the Danish DIANE CENTRE, which took over many of the jobs that the Documentation Department at the library had tried to do.

In fig. 2, you can see the effect of the centre when it began in spring 1981. The centre hosts all sorts of online courses and can, of course, do a lot more for the online user than we at the libraries because we have som many other duties.

Danmarks Tekniske Bibliotek Documentation Department



DEMONSTRATIONS NOT INCLUDED

Fig. 2

The centre is always up-to-date with regard to the newest equipment and can always help in a strictly neutral way. There is a representative of the centre present here at the conference and if you would like to know more about the work they do, I feel sure Klaus Søndergaard will be glad to give you all possible information. The centre sends out regularly lists of online courses in Denmark and also a very neat newsletter with very useful information.

But to return to the poor online user who has been through several courses and still feels far from perfect what matters online searching. We have in The Danish Online User Group and in the Danish Society for Information and Documentation, study groups where the user can meet other users and try to solve some of the more technical problems of online searching. But no matter how much the specialists do to help the online user. It will not work unless the online user regularly uses his terminal and keeps his knowledge up-to-date. And the minimum of searches, that you must do is at least 5 searches per month to keep your skill alive.

Online Education

The National Technological Library of Denmark

	81	80	79	78	77	76
Beginners	110	135	105	72	24	65
Advanced	40	60	27	50	40	41
Students (Tech Univ)	80	80	80	80	80	
Students (Other)	110	80	30	30	10	
Database producer courses	50 97 Aug-Dec	162	47	20		

Demonstrations not included

DANSK DIANE CENTER
(1982 189, jan-jun)

Fig. 3

ONLINE EDUCATION ROUND THE WORLD: FINLAND

Arja-Riitta Haarala

Library of Helsinki University of Technology, Espoo, Finland

Historical development

First of all I would like to point out some landmarks important to the Finnish usage of online services.

1973 Helsinki University of Technology Library introduced the HTKK-INIS search system. Online training was introduced as subject-oriented instruction. After one hour's lecture and a demonstration, students were invited to use the system themselves. It was only last year that this system was given up because INIS became available through international networks.

Medline demonstrations took place at the Medical Exhibition. Since then Medline has been included in the user education given by the National Central Library for Medicine in Helsinki.

1974 Lockheed and SDC demonstrations conducted by Finnish users took place at the Training Centre of the Engineering Societies.

1976- Numerous seminars and workshops have been carried out by Scandinavian, European and American systems operators and database producers. These activities have mainly been intended for intermediaries; end-users have not yet shown any great interest in taking part in online training.

User education given by various organisations

In the early seventies, university libraries directed marketing efforts towards postgraduates, but now online methods, whenever it is possible, are included in subject-oriented instruction for undergraduates. Lectures usually take one or two hours, after which there is an online demonstration. In some cases online searching by students is possible, as is the case at the Helsinki University of Technology Library. Helsinki School of Economics gives half-day courses, and hands-on training is available at the Computer Centre later. Often the demonstrations are linked to other activities like postgraduate seminars. In many cases online education is compulsory because the new degree regulations at Finnish universities include information studies as a compulsory subject in the new curricula.

The postgraduate Course of Information Systems and Services at Helsinki University of Technology has included online education in its regular programme since 1976. This is integrated so that online is taught over the whole year. Especially important is the experimental database: indexing and input is done by students and later the same database is used for searching.

The Institute of Librarianship and Information Science at Tampere University have included computers in the curriculum for a longer time, but real online information retrieval education started just recently. The Swedish School of Librarianship had included it in the curriculum somewhat earlier. In the case of the Finnish School online education is integrated in other training, but a special seminar on information storage and retrieval will be arranged.

Finnish database producers offer online training continuously, usually in the form of half-day seminars.

Libraries and information centres, experienced in online techniques, train colleague librarians and information specialists on consultancy basis. Even external end-users have been included.

Learned societies have become more aware of online techniques, and, for instance, the Finnish Association of Chemists gave a two-day seminar on chemical information with a strong online emphasis. Training centres for further education include online techniques, and their promotion, in their seminars; for instance the Training Centre of the Engineering Societies gave a seminar for mechanical engineers, and a whole afternoon was reserved for online searching.

The Finnish online user group has included meetings and seminars into its activities since 1977. A newsletter Online Uutisia has been published for some years.

User aids

Guides and manuals are produced by systems operators and database producers. No special textbook on online techniques is available but texts are included in professional publications.

A learning package which included a guide, a videotape, a set of slides and a workshop was developed at Helsinki University of Technology Library for HTKK-INIS system in 1977.

Extemplo - an electronic newsletter for Nordic countries - is used to provide information about what is happening in the field.

ONLINE EDUCATION ROUND THE WORLD: NORWAY

Aud Lamvik

Library of the Norwegian Institute of Technology, Trondheim, Norway

Online bibliographic information retrieval was, as far as I know, pioneered by the aerospace industry.

In Norway, the online searching era, or age, started with searching the MEDLINE database from Stockholm in 1973. NAVF, the Norwegian Research Council for Science and the Humanities, Division of Biomedical Documentation, was operating the MEDLINE search service in the first experimental period, but in 1974 the University Library of Oslo took the responsibility of that service, and we also got MEDLINE terminal stations at the Norwegian Institute of Technology Library (NTHB) and the University Libraries of Tromsø and Bergen.

Before that time, SDI-services were offered to Norwegian users in the scientific/technological/biomedical fields, primarily at NTHB. Our information specialists got their education and training in SDI and online searching in Sweden, at the Royal Institute of Technology Library (RITL) and at the Biomedical Documentation Center (now: Medical Information Center, MIC), Karolinska Institutet, before starting services in Norway.

As my experiences in online information retrieval are from NTHB, I will present to you the documentation services offered at our library to Norwegian users (figure 1 and figure 2).

We have seen that online information technique has developed strongly since the very beginning, and education on all levels for all online users is very important. Who are then the users who need education and information?

Online users

Primarily they are the searchers of the online databases: The intermediaries, brokers, information officers, those who are formulating the search strategies, selecting the online systems and choosing the files, using the terminals and keeping up with the news and changes of the services. Some are experienced searchers, while others want to start online searching or are just in the beginning of their online career, even students. All groups have their needs concerning education.

THE LIBRARY'S DOCUMENTATION SERVICES

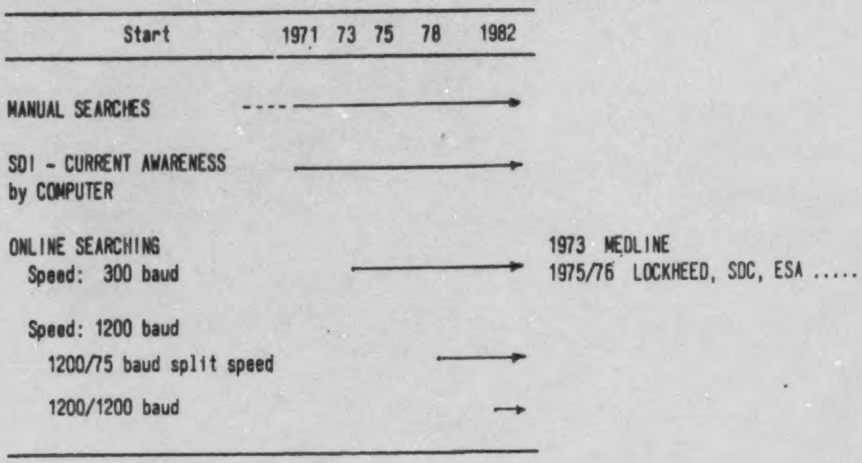
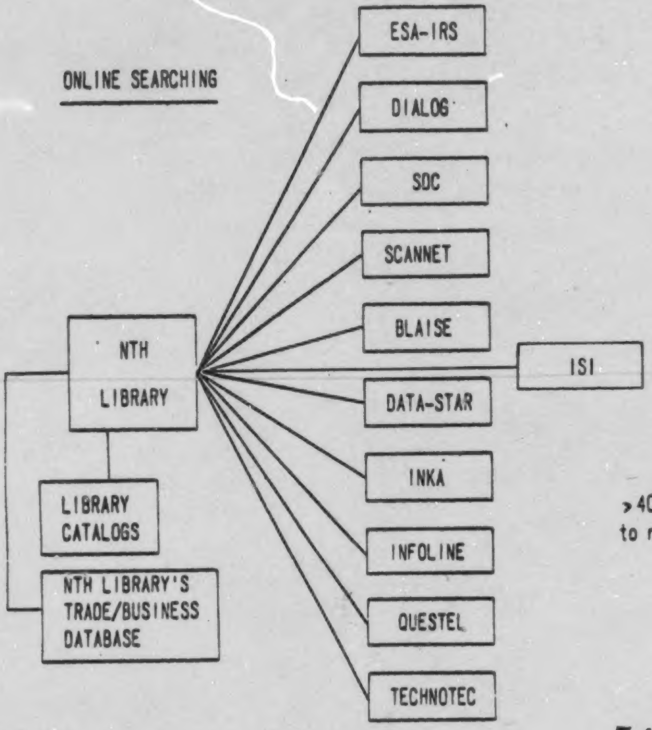


Fig. 1

ONLINE SEARCHING


ESA-IRS
DIALOG
SDC
SCANNET
BLAISE
NTH LIBRARY
ISI
DATA-STAR
INKA
INFOLINE
QUESTEL
TECHNOTEC
LIBRARY CATALOGS
NTH LIBRARY'S TRADE/BUSINESS DATABASE

NORPAK — TYMNET
UNINETT — TELENET
ESANET
EURONET
CYBERNET

>40 different passwords
to networks, systems and databases

Fig. 2

But there are also the end-users, those who are not actually doing the preparatory work, but are the real users of the information in their work. Thirdly there are the non-users, users who probably are not aware of the online services and are potential future users. End-users and non-users have their particular requirements concerning online education. Marketing of online services is very important here.

I will also mention another user group: The users who want to create databases, not only perform online searches in external ones. The market is continuously offering new, and better, data equipment and online data program packages (hardware and software), and there are increasing demands for different kinds of computerized library catalogues, so education in these fields is also important in the online age.

Online educational institutions

The following institutions in Norway are involved in online education and training:

Statens Bibliotekhøgskole (SBS) is the only school of librarianship in Norway, and most Norwegian librarians are educated from this school. The school have courses in EDP in libraries including such applications as online cataloguing and online information retrieval. The students get, however, minimal training in searching the large international online systems, and need further education in this field if they are going into the online searching profession in a library after graduation.

The university libraries offer their own specialized education and training for research librarians/information specialists. Candidates with required master's degrees in engineering, the sciences, economics or the humanities, etc., are trained in library and information science while working in the university libraries for 1 - 1 1/2 years full time.

I will explain further how this education is organized at the Norwegian Institute of Technology Library: Our library candidate education is of importance to our library, in order to get well qualified research librarians for our different scientific and technological fields of interest, and the library candidates are also well qualified for special librarianship in industry after the education. Since 1971 NTHB has been offering education for 5 candidates/year, each working 1 1/2 years in the library at the following schedule (see figure 3).

Besides the practical work and training in the different departments, there are organized colloquiums (1-2 hours) every week, where the candidates are taught, and are discussing, library routines as well as information about special abstract journals and reference handbooks in our disciplines. During these hours they also get information about online searching, communication networks, equipment, user aids, how to start an online service, etc. It is important to have a good knowledge of the databases, in order to search them

SCHEDULE FOR CANDIDATES WORKING AT NTHB

(ASPIRANT-TJENESTE)

1) 1 week in each of the library departments in order to learn to know the work there

2) Periodicals department		6	weeks
3) Cataloguing department			
	Accession	6	"
	Cataloguing	8	"
	Classification	14	"
4) Public Services department			
	Circulation desk	1	"
	Interlibrary loans	10	"
5) Documentation department		10	"

6 weeks course at Statens Bibliotekhøgskole or corresponding education

1-2 hours of colloquiums every week

Totally 1½ years

FIG. 3

efficiently, and we are in the lucky position of having the printed editions of most of the databases we frequently search online. Those abstract journals are of special importance in the colloquiums.

In addition to this education program in the library, the candidates have got 6 weeks of education at the Norwegian library school. SBS, in collaboration with the university libraries, has made a program for the candidates from all university libraries, where they are taught the more theoretical aspects of librarianship, cataloguing, classification, administration, etc. Online searching is also elucidated here, and NTHB has been responsible for that part of the program for some years. The following program was set up for the online education in the candidate courses (see figure 4).

We have felt that this online education has been of great value to the candidates in order to operate online services. When our own candidates are working in the documentation department of our library during their training time, they get experiences in the daily work and are further qualified for online searching.

Norsk Dokumentdata, an institution affiliated partly with STATENS Bibliotekhøgskole, is offering another educational program in EDP for librarians, mostly of 2 years duration. The students, who are working and get their payment also here, are taught programming, online library cataloguing, etc., and are working on projects for the Norwegian library society. Norsk Dokumentdata is also arranging courses in collaboration with Statens Bibliotekhøgskole and library organizations in order to make EDP in libraries more familiar to librarians without education in this field. Ex.: 5 days introductory course in EDP for documentation and libraries.

There are also other institutions involved in online education. NSI A/S (Norwegian Centre for Informatics) gives courses to librarians and industry in how to use their own online databases, etc. There will later be a paper about this education.

Training courses and marketing

Besides the online education courses mentioned above, there are offered several online courses at university and industry libraries with the intention of marketing online services.

At NTHB we offer information retrieval courses to students in their final years of education, to postgraduate students and to the university faculty. During 14 hours the students and staff are informed about library catalogues, abstract journals, patents and computerized information retrieval, SDI and online services. They have to complete a set of exercises where they must use different library material, in order to pass the course. We also give shorter introductions in library and information services to 1. grade students and to students of other schools in the district.

THEORETICAL EDUCATION FOR LIBRARY CANDIDATES

Totally 6 weeks, in 3 parts, 2 weeks each.

Program, part 2, second week. PLACE: NTHB

INFORMATION RETRIEVAL, especially by EDP-methods.

1. Introduction
2. Manual literature retrieval. Abstract journals.
    - Chemical Abstracts
    - Science Citation Index, SSCI and AHCI
    - Engineering Index
    - Biological Abstracts
    - Other search aids and manuals
        - Card catalogues, handbooks, etc.
3. Computerized information retrieval
    - GeoArchive at NTHB
    - SCANNET and databases available there
4. SDI-services
5. Online searching. Introduction, communication networks, equipment, prices, etc.
6. LOCKHEED - ESA/IRS
7. SDC - MEDLINE
8. Closing of the course

MANUAL TRAINING FOR PART 2, TERMINAL TRAINING FOR PARTS 3 - 7

FIG. 4

During the last year we have tried to present our library and information services to some of the departments of our technological university during the faculty's lunch hour. We have presented BIBSYS, our computerized library catalog and the same on microfiche, the library services, and demonstrated online searching with questions from the faculty. It seems to be a valuable form of marketing library and information services, and we hope to find time to reach all of the university departments in this way during lunch breaks.

Early in the seventies we started with seminars "information searching days", every second year, for industry, and later also "Online searching days", seminars for the same clientele. The latter had much the same program as the online searching course for library candidates, which was described earlier. We have also had several librarians from industry for online training in our library for shorter times, 1-4 weeks, before they have started their own online search service. In many ways we feel that we have a function as a referral library in "how to start an online service". There is really a need for a place to call concerning problems, both before starting up online searching and sometimes when having search problems.

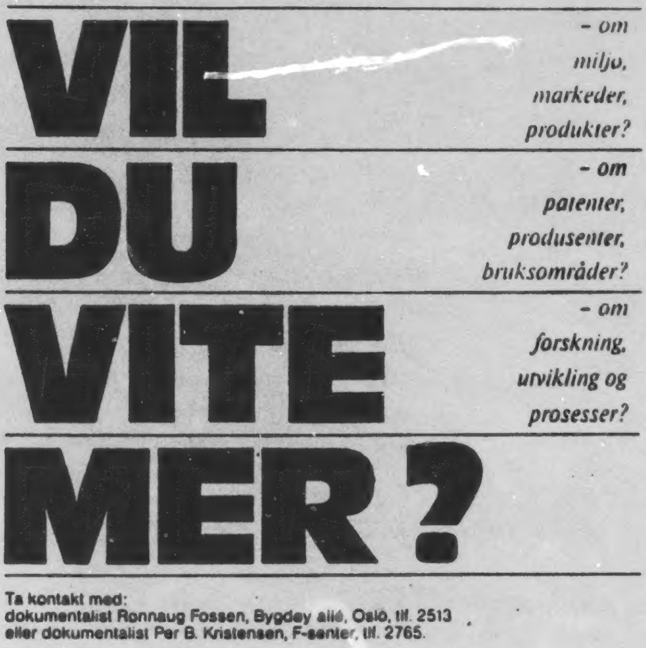
I should perhaps also mention our seminars "Datalib" which give introductions to and demonstrations of automated library systems round the world. The seminars have been held 5 times now, every second year.

I will also mention the hosting of online workshops as well as introductory and advanced online courses sponsored by database producers and systems operators. Such seminars are mostly arranged in Oslo or at NTHB in Trondheim, but I have a feeling that database producers and systems operators prefer to give their courses in Stockholm and Copenhagen.

The Norwegian online user group and library and documentation associations, especially Norsk Dokumentationsjonsgruppe, are important factors in the online user education and training in the country. During meetings and continuing education courses, several problems concerning the online technique and communication networks have been elucidated.

We are not many online searchers in Norway. The online user group has about 60 members, and many of them have no equipment for online searching in their libraries or business. In 1980 there were 53 Norwegian passwords to SCANNET and 46 passwords to TYMNET (Amsterdam node). I have no later data, but I am sure we are less than 100 online searchers also today. Marketing of online services to end-users and non-users is therefore very important.Perhaps they will end up as online searchers themselves later. Some of our larger industry librarians are enthusiastic in marketing their services, through brochures, lessons and workshops (see ex. figure 5), but there are still needs for information about library and documentation services to most industries in the country. University libraries such as NTHB should have a responsibility here.

There have been some discussions about Nordic cooperation concerning user education, under NORDINFO's direction, and material from the Nordic countries in user education has been registered. Perhaps it can result in an user education databank. But still the education and training work done by every university and research library is very important.



VIL
- om
miljø,
markeder,
produkter?

DU
- om
patenter,
produsenter,
bruksområder?

VITE
- om
forskning,
utvikling og
prosesser?

MER?

Ta kontakt med:
dokumentalist Ronnaug Fossen, Bygdøy allé, Oslo, tlf. 2513
eller dokumentalist Per B. Kristensen, F-senter, tlf. 2765.

ONLINE EDUCATION ROUND THE WORLD:
EDUCATION AND TRAINING OF END-USERS IN SWEDISH ACADEMIC LIBRARIES

Nancy Fjällbrant

Chalmers University of Technology, Gothenburg, Sweden

1. Introduction

In 1981 a survey on user education in Swedish academic libraries was carried out by Fjällbrant.[1] This paper presents briefly some of the findings with regard to education and training in computerized information retrieval. Emphasis is on end-user education rather than the training of intermediaries, as the latter will be dealt with more fully by other speakers at this seminar (Klasén, Alton-Lundberg and Olsson).

2. Methods

A postal questionnaire was sent out to 39 libraries (for a list of the institutions see Appendix). The questionnaire was designed to provide information about three phases of library user education: orientation, instruction in manual information retrieval, and computerized information retrieval. Information about the volume of teaching - number of courses given, length of each course, and number of participants was requested. The methods and media used for instruction were examined, together with the forms of evaluation carried out. Finally an outline of any future plans for development in this area was asked for. The questionnaire also included a request for information about the size of the library in terms of holdings, and study places, and the number of undergraduate and postgraduate students at the institution of higher education. The respondent's name and telephone number were requested, so that any information which was unclear could be clarified by a telephone interview.

Response to the postal questionnaire was high, after one reminding letter, 38 of the 39 institutions had replied. (97%). The information available from the questionnaires was checked and supplemented by interviews (personal and telephone), as well as by visits to many of the institutions concerned. Additional information on programmes of user education was available from a number of papers describing work at individual institutions:

Caroline Institute Library, Stockholm (Ljungars, 1974,[2] Nordenskiöld, 1978[3])
Royal Institute of Technology Library, Stockholm (Sabsay 1977[4] and 1978[5],

Klasén & Sabsay, 1979 [6], Höglund, Klasén, Persson & Sabsay, 1979 [7]).
Chalmers University of Technology, Gothenburg, (Fjällbrant, 1976 [8], Fjällbrant
& Hård, 1979 [9], and Fjällbrant, Kihlén & Malmgren, 1981[10])
Linköping University Library (Lindberg, 1977 [11])

Approximately one year after the initial questionnaire, respondents from the 28 libraries which had described "future plans" for user education, were interviewed about the achievement of these plans.

3. Findings

3.1 Courses in information retrieval for undergraduate students

28 of the 38 responding libraries organized some form of course in information retrieval for the undergraduate students. These courses varied considerably in length, content and number of participants. The majority of the courses, 18,were short - less than 5 hours, 10 courses were only 1 or 2 hours in length. The longer courses in information retrieval included, in some cases, both manual and computerized information retrieval, as for example at Linköping University (from 2 to 10 hours), and at Lund UB II Library (courses 4-7 hours). The Royal Institute of Technology, Stockholm, had a 22 hour undergraduate course covering 1 hours orientation, 13 hours manual information retrieval and 8 hours computerized information retrieval. Chalmers University had a 14 hour course in information retrieval with 6 hours for computerized literature searching, Luleå University had 16 hour courses on manual and computerized information retrieval. 8 to 12 hour courses were given at the Swedish University of Agricultural Sciences, Ultuna. These contained 2 hours computerized information retrieval, whereas the Umeå section of the university gave 4 hour courses with 2 hours computerized retrieval.

In addition to the courses in computerized information retrieval mentioned above, there are courses in online searching at Umeå University (2 hours) and at the Swedish College of Librarianship, Borås, where they form part of the training for students of library and information science.

3.2 Postgraduate courses

17 of the 25 libraries serving institutions with doctoral students provided courses in information retrieval. 11 of the courses included instruction in both manual and computerized methods of literature searching. The postgraduate courses were in general longer than the undergraduate courses. Thus Chalmers University Library gave a two weeks course (70 hours) in methods of information retrieval, citation indexing and document delivery, 3 to 4 times per year. The Library at the Caroline Institute, Stockholm gave a 30 hour course on manual and computerized information retrieval once a year for medical postgraduates, whereas the Biomedical Section of Gothenburg

University gave a 14 hour course 4 times a year. Postgraduate courses in manual and computerized information retrieval were given at the Royal Institute of Technology, Stockholm (14 hours, once per year), Linköping University (11 hours, three times per year), Lund UB 2 Library (8-10 hours, five times per year), the library at the Swedish University of Agricultural Sciences, Ultuna (4 hours), Skara College of Veterinary Medicine (22 hours, given occasionally), Umeå Forestry College (8 hours, once per year, included report writing), Uppsala University (2 hours). Umeå University provided courses in manual and computerized information retrieval for medical and dental postgraduates (approx. 11 hours, twice per year) and courses in manual information retrieval (9 hours, for students from other disciplines). Luleå College of Technology cooperated with Umeå University in the organisation of postgraduate courses in information retrieval.

4. Methods used for teaching computerized information retrieval

The methods and media used for teaching computerized information retrieval in the 13 libraries which provided this form of instruction were studied, and the findings are presented in Table I.

Table I Methods and media used for teaching computerized information retrieval

Teaching method or media	No. of libraries using given method
Lecture	12
Seminar	9
Demonstration-online	12
Demonstration-recorded	3
Tape/slide	4
Film	0
Video	3
Mediatron	2
CAI	0
Printed media:	
from database producer	3
systems operators	5
compendia	7
textbooks	0
Demonstration of user's 'own' search	10
User carries 'own' search	6

As can be seen from Table I the most frequently used methods for teaching computerized information retrieval were the lecture (12 libraries) and online demonstration (12 libraries) demonstrations of user's own search (10 libraries) and seminars (9 libraries). Audio-visual methods were used to a relatively greater extent than in teaching manual information retrieval. The methods used were tape/slides - 4 libraries, videofilms 3, multi-media MEDIATRONs 2 libraries and 1 planning to use. A number of libraries made use of printed media provided by systems operators (5 libraries) or database producers (3 libraries), 7 libraries used compendia or course material. Few libraries taught the user to carry out his/her own search at the terminal.

5. Evaluation of the courses in computerized information retrieval

Of the 13 libraries which gave courses in computerized information retrieval, 8 reported that they had carried out some form of evaluation. 6 of the libraries had used questionnaires about student attitudes. In one case evaluation had been carried out by informal discussion and in one other case by recorded discussion. The evaluation of the course at the Royal Institute Library, was described in the previous section. At Chalmers Library, pre- and post tests had been carried out on MEDIATRON programmes on orientation on computerized information retrieval. The search results of end-users had been analysed with regard to search effort and search product. [12]

6. Realization of proposed future plans

Respondents were asked to outline any future plans they might have for developing any aspect of user education. 28 of the 38 institutions answered with information about their future plans within this area of librarianship. The realization, or part realization, of these plans was checked, approximately one year after the initial response.

A number of libraries had plans with regard to the teaching of computerized information retrieval. At Chalmers University Library, undergraduates in the civil and mechanical engineering departments had been taught to carry out their own online searching. At the Gothenburg University Biomedical Library, recorded searches were used for part of the instruction, as planned. Other plans to teach about computerized IR, at Stockholm University, the Library, and at the Alnarp campus of the Swedish University for the Agricultural Sciences, had not been realized.

7. Discussion

The survey of user education in Swedish academic libraries showed that only 10 % of the 38 responding libraries provided any instruction for undergraduate students and that 12 gave such courses for postgraduates. In no cases were courses in computerized information retrieval given at any of the smaller university colleges established after the 1977 Higher Education Reform Act. Courses in computerized information retrieval were best developed in the specialized engineering or medical institutions, or universities with a science, medical or technological faculties. 8 of the 13 organizations proving online education or training had carried out some form of evaluation.

References

1. FJÄLLBRANT, N. User education in Swedish academic libraries: a survey of recent developments, Libri, Vol. 32 (1982) 3, pp. 224-240.

2. LJUNGARS, K. "Erfarenheter från forskarutbildningskursen i biblioteks- och dokumentationsteknik vid Karolinska Institutet". (Experience from a postgraduate course in library techniques and information retrieval at the Karolinska Institute) KIB-rapport nr. 4. Stockholm 1974. 14 pp.

3. NORDENSKIÖLD, U. Låntagarundervisning vid Karolinska institutets bibliotek. [User education at the Caroline Medico-Chirurgical Institute]. Tidskrift för Dokumentation, Vol. 34 (1978) 5, pp. 85-86.

4. SABSAY, P. An attempt at integrating education in information retrieval into university studies. In: MacCafferty (ed.). User education - towards a better use of information resources. Aslib & Eusidic, European User Series 4, London 1977. pp. 27-32.

5. SABSAY, P. A perspective of library education. In: S. Schwarz, G, Carlsson, G, Fröberg (eds.). Library services in transition. Stockholm, Royal Institute of Technology, 1978. pp. 155-170.

6. KLASÉN, L. & SABSAY, P. Informationssökning för tekniker och naturvetare. [Information searching for technlogists and scientists]. TRITA-LIB 5008, Stockholm, Royal Institute of Technology, 1979. 67 pp.

7. HÖGLUND, L., KLASÉN, L., PERSSON, O & SABSAY, P. En studie av informationssökning och biblioteksanvändning i högre utbildning. TRITA-LIB 5009, Stockholm, Royal Institute of Technology, 1979. 64 pp.

8. FJÄLLBRANT, N. The development of a programme of user education at Chalmers University of Technology Library. Ph.D. thesis. University of Surrey, Guildford, 1976. 499 pp.

9. FJÄLLBRANT, N. & HÅRD, S. Design and Evaluation of Multimedia Programmes for Education in On-Line Information Retrieval. Tidskrift för Dokumentation Vol. 35 (1979) 5, pp. 101-106.

10. FJÄLLBRANT, N., KIHLÉN, E. & MALMGREN, M. End-user training in the use of a small Swedish database. Paper presented at 100th American Library Association, Annual Conference, San Francisco, June 26 - July 2, 1981.

11. LINDBERG, A. Teaching library users at Linköping University Library. IATUL Proceedings. Vol. 9. 1977. pp. 76-78.

12. FJÄLLBRANT, N., KIHLÉN, E. & MALMGREN, M. End-user training in the use of a small Swedish database. (To be published in College and Research Libraries, 1983.)

The 1977 Swedish Higher Education Reform Act emphasized the need to make higher education more accessible, through decentralization and the establishment of a number of small University Colleges. These institutions often suffer from having relatively limited libraries, with inadequate funds for both library staff and purchase of literature.

Emphasis should be given to the development of training in computerized information retrieval in the smaller colleges and to increasing online education in the older established universities.

Appendix I

List of institutions to which questionnaire was sent

Borås högskolebibliotek
Chalmers tekniska högskolas bibliotek
Gymnastik- och idrottshögskolans bibliotek
Gävle/Sandvikens högskolas bibliotek
Göteborgs universitetsbibliotek. Biomedicinska biblioteket
Göteborgs universitetsbibliotek. Botaniska biblioteket
Göteborgs universitetsbibliotek. Centralbiblioteket
Göteborgs universitetsbibliotek. Konstindustriskolan
Göteborgs universitetsbibliotek. Biblioteket i Mölndal
Göteborgs universitetsbibliotek. Socialhögskolans bibliotek
Handelshögskolans i Stockholm bibliotek
Jönköpings högskolas bibliotek
Kalmar högskolas bibliotek
Karlstads högskolas bibliotek
Karolinska institutets bibliotek och informationscentral
Karolinska institutets odontologiska fakultetsbibliotek. Huddinge
Karolinska institutets odontologiska fakultetsbibliotek. Stockholm
Konstfackskolans bibliotek
Kristianstad högskolas bibliotek
Linköpings universitetsbibliotek
Luleå högskolas bibliotek
Lunds universitetsbibliotek
Lunds universitetsbibliotek 2
Odontologiska biblioteket vid Tandläkarhögskolan i Malmö
Socialhögskolan i Stockholm. Biblioteket
Stockholms universitets bibliotek
Sveriges lantbruksuniversitets bibliotek. Alnarp
Sveriges lantbruksuniversitets bibliotek. Garpenberg
Sveriges lantbruksuniversitets bibliotek. Skara veterinärbibliotek
Sveriges lantbruksuniversitets bibliotek. Ultuna biblioteket
Sveriges lantbruksuniversitets bibliotek. Umeå
Sundsvall/Härnösands högskolas bibliotek
Tekniska högskolans bibliotek
Umeå universitetsbibliotek
Uppsala universitetsbibliotek
Vetenskapsakademiens bibliotek
Växjö högskolas bibliotek
Örebros högskolebibliotek
Östersunds högskolebibliotek

THE ROLE OF NORDINFO IN PROMOTING ONLINE ACTIVITY

NORDINFO-ORIGINS AND CONTROL

Theodora Oker-Blom
NORDINFO. The Nordic Council for Scientific Information and Research Libraries
Espoo, Finland

NORDINFO - the Nordic Council for Scientific Information and Research Libraries, was established in 1977, as an intergovernmental agency for cooperation in the information and library field in the Nordic countries (Denmark, Finland, Iceland, Norway and Sweden). Cooperation in this area had a long history and NORDINFO resulted from a merger of the functions of earlier organisations.

NORDINFO is one of about 40 Nordic bodies supervised by the Secretariat for Nordic Cultural Cooperation under the direction of the Nordic Council of Ministers.

NORDINFO's decision-making Board consists of three members from each of the countries other than Iceland, which has two. The members are appointed by the Nordic Council of Ministers on the recommendation of the national Ministers of Education and the national library, information and documentation councils. The Board convenes twice a year and members serve for three years. The present Chairman (until 1982) is Gerhard Munthe, Director of Norway's National Office for Research and Special Libraries. The Board and an Executive Committee of Board Members are aided by a Secretariat, located at the Library of the Helsinki University of Technology.

NORDINFO - OBJECTIVES AND TASKS

NORDINFO's principal objective is to promote an improved and more rational library and information service for research workers and other users of scientific information and documentation, through cooperation among the Nordic countries. The agency seeks to achieve this objective by supporting development projects that will lead to a harmonized Nordic system of information supply. To this end NORDINFO receives annually a portion of the Nordic Cultural Budget, fixed by the Nordic Council of Ministers.

In particular, NORDINFO is required to:

- keep abreast of developments in the field in the Nordic countries and internationally, and to give advice and information to international and Nordic bodies;

- promote and coordinate transfer of information within and among the Nordic countries and internationally;
- initiate and carry out inquiries and projects on methods, systems development, and education; and
- support the development of systems in the field but not their long-term operation

PROJECT ACTIVITIES OF NORDINFO

NORDINFO's project activities are divided into four programme areas: policy development and coordinating activities, library resources, data bases and network activity, and education. In these areas NORDINFO gives priority to projects that relate to Nordic needs for information that are not met by international services, and that make it easier for Nordic users to acquire information from systems outside Scandinavia.

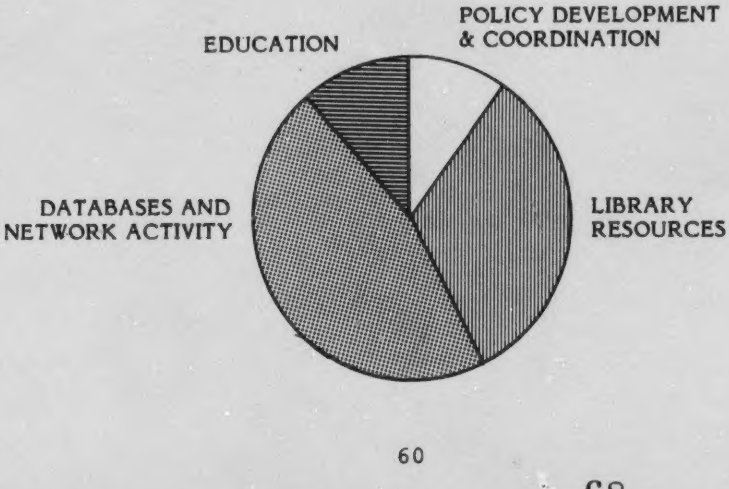
Within all four programme areas support is given to online activities. The diagram below shows that nearly fifty percent of NORDINFO's project budget is used within the programme area databases and network activity. This implies NORDINFO's pronounced interest in the promotion of online activities.

I want to elucidate NORDINFO's role in the promotion of online activities in the Nordic countries by giving you some examples of types of projects supported within the four mentioned programme areas.

Databases and network activity

Cooperation on SCANNET, the library and information dedicated network has assumed a central role in NORDINFO's programme since 1979, when financial responsibility for the network was taken over from NORDFORSK, who initiated the projects in 1974.

FOUR PROGRAMME AREAS OF THE PROJECT ACTIVITY



As the PTT:s in the Nordic countries gradually have taken over the responsibility for the technical telecommunications, the emphasis of SCANNET has been shifted towards the database area. The main aim in this second phase, SCANNET II is thus to improve the user services in SCANNET by for instance coordination of hosts in the Nordic countries, coordination of users, new types of training courses, manual design and efficient consulting services.

The major amount of the means in this programme area is, however, used for the promotion of the increase and improvement of databases in SCANNET. The reasons are:

- to ensure the supply of information that is especially relevant to Nordic users;
- to promote competence in the creation and improvement of information systems;
- to transmit Nordic information to users outside the Nordic countries; and
- to ensure a user-friendly service.

In supporting database development priority has been given to those that have a Nordic connection and which contain material not available via the large international information systems. Other objectives in this programme area include facilitating the use of foreign online information systems and extending the use of information networks.

NORDINFO has so far supported the implementation or building-up of about 20 databases in fields like Arctic medicine, Nordic construction engineering, architecture and community planning (BYGGDOK), Economics and business administration (SCANP), Nordic energy information (NEI), Ship building and technology (SHIP-Abstracts), Environmental data and ecological parameters (EDE) and an electronic information bulletin EXTEMPLO, to give just some examples.

Policy development and coordinating activities

In this area are projects that give NORDINFO information for the development of its own policy and programme or which makes it possible for NORDINFO to inform the library, documentation and information field about relevant developments and trends. Projects in this programme area include:

- Nordic meetings of the national online groups
- meetings of NORDINFO's temporary Nordic reference group in user education
- inventory of databases produced in the Nordic countries
- a Nordic conference on exchange of online library catalogue information

Library resources and document delivery

The purpose of activities in this area is to coordinate the acquisition of literature in the Nordic countries as extensively as possible, as well as to support various types of union catalogue projects and to facilitate document delivery and Nordic inter-library lending. Examples of online projects in this area are:

- an online test with the Union Catalogue of Periodicals in Nordic Research Libraries (NOSP)
- document location files (based on NOSP) for MEDLINE

Two large investigations of the interlending in the Nordic countries have been completed this year. NORDINFO's intention is to make up future plans for effective document delivery in the Nordic countries on the bases of the study results.

Education

In this field NORDINFO's activities relate to both the training of library and information personnel and the training of information users. Joint Nordic training activities in new technology and networks have for instance been undertaken and are projected for library and information personnel.

A considerable number of non-database specific and database specific courses have been supported by NORDINFO. The specific databases considered, have mostly been the Nordic databases in SCANNET. The courses have been attended by library and information personnel and information users.

User training has developed in Scandinavian universities and NORDINFO will make efforts to reach new categories of users in public administration, industrial organizations, and other fields, with the aim of making a contribution to effective performance. A Joint Nordic effort in training teachers for the education of users has thus been supported.

NORDINFO has also promoted the production of different user aids, like for example guides and manuals, database directories and a handbook on interactive information retrieval systems and searching. A survey of existing textbooks and teaching aids is in progress and, when finished, the joint production of training materials and aids will be of interest.

NORDINFO's activities are presented quarterly in the news bulletin NORDINFO-Nytt.

LIBRARIANS AND THE NEW TECHNOLOGY: THE PROCESS OF CONTINUING EDUCATION

Alina Vickery

Central Information Services, University of London, London, England

Once upon a time to be a librarian was a safe job. After finishing studies, the young librarian entered a job in a library: university library, special library or public library and became a cataloguer, a reference librarian, a circulation clerk or a library manager. From year to year he or she gained more experience in the techniques of the profession and the success or failure on a job could be mostly attributed to his or her personal traits, achievement motivation and the environment.

The past fifteen to twenty years has brought an enormous growth in the use of computer systems in libraries. The large libraries started by adjusting to the big machines such as ICL, Honeywell, Amdahl etc. then minicomputers, (DEC, Hewlett-Packard, Prime, etc.) started to be fashionable. Microcomputers started to be used in libraries and information work during the 1970's. The impact of the ever growing microcomputer promises to be even more intense in the coming years. The driving force behind the continuously extending use of microcomputers is their very low price and a greater degree of independence as compared to mainframe or even to a mini. The independence of a micro is based on its small size, cheapness and the possibility to have the piece of equipment to yourself in its entire capacity without the problems created by sharing. You can devote yourself in your privacy to mastering the use of the machine, emancipated from the overwhelming mystique of the sacred priests - the computer men.

We have all come across resistance to computers, which started to be used either in online information retrieval or in the field of library automation. These nearly pathological symptoms of resistance to change can be attributed to such risk factors as dynamics of the new technology, lack of understanding of the new systems, lack of librarians qualified in this area of application, and the conservatism and inertia of some library managers.

The relationship between the new technology and employment is difficult to assess. Transitional unemployment may be created by introducing automation to libraries, but new services and new jobs should replace the old ones, and the new generation of professionals should welcome new opportunities.

It is easier to estimate the extent to which computer systems have changed the job itself. Looking at the library profession, the computers brought two main changes: the introduction of online interactive searching, and the automation of housekeeping activities. The library schools introduce slowly the necessary courses aimed at the professional librarians and information workers. The task of adjusting the on-job librarians to the new situation is much more difficult and demands a collective effort of professional organisations, such as Library Association and ASLIB in Britain as well as an initiative of the management in institutions: governmental, educational, research and industrial.

In this paper the training of on-job librarians is described. I shall concentrate on two areas: online training and training in new information technology.

Online training

There are two near synonyms of the term training, namely education and promotion. Martha Williams in 1976 discussed the difference. She defines TRAINING as a function concerned with the contents and structure of databases, design strategies as they should be implemented within specific online or batch systems, and techniques for utilising services offered by individual centres. EDUCATION is concerned with the foundations, principles and basic knowledge of information science and other disciplines as they relate to the particular problems of database structures, file structures, logic formulation of search strategies, system analysis and design, vocabulary structures and user needs. MARKETING or PROMOTION are concerned rather with making various target groups aware of services and of their contents and advantages that accrue to the specific databases.

The aim of all three activities, mentioned above, vary. The educational activities are intended for students in academic institutions who as part of their curriculum need to cover online problems. These activities may be also part of continuing education for librarians on-job. Training activities are intended for librarians/searchers (intermediaries) and for end-users, i.e. the persons who will actively use the system. Promotional activities are aimed at publicising and purchase of online services, databases or systems.

I shall concentrate on training and only partly on educational activities. Marketing will be excluded from this account.

The online functions are now well established and are considered to be respectable even by traditional librarians. Training of intermediaries is presently carried out on a large scale by database processors, database producers, institutions (professional, industrial, governmental, research, and academic).

The first major study on training of online intermediaries was conducted by Judy Wanger in 1976. Judy Wanger published also a chapter in ARIST, 1979 with 92 references covering the period of 1976-1979. Stella Keenan conducted a survey of online education and training programmes for EURONET/DIANE in 1979. Stella Keenan and Alina Vickery published a report on "Training requirements for online intermediaries", a study supported by a grant from the British Library, R&D Department and completed in 1982. From all the evidence available to us, it is clear that persons who needed to reach some level of competence in online searching attended some kind of formal training organised by database producers, database processors or professional and educational institutions. Industrial companies very often train their staff on on-site courses inviting database producers to support their internal tutors.

The formal training courses are usually conducted on two levels: introductory and advanced. Their contents vary. Sometimes they provide subject specialisation for search analysts with subject knowledge, but often they are rather of general character (especially those courses intended for beginners or managers who just need some rudimentary knowledge of the online situation). I shall not describe the programmes of the courses. These have already been given in great detail elsewhere and are probably well known to the participants of this meeting. We are also well aware of the qualifications which are expected from an intermediary/search analyst. The education requirements include a first degree in a subject related to the requirements of the end-user, a second qualification in librarianship or information science. The subject degree may be substituted by a few years work experience as reference librarian in the subject together with persistent self-education. To acquire the skills with the terminal and online databases, some kind of training is needed, either on an official online training course organised by the organisations mentioned above, or in on-job training under the supervision of an experienced searcher. A lot of hands-on experience is needed to gain self-confidence in the techniques. Acceptance of online as part of curriculum at the library schools will probably make the introductory online training course obsolete with time.

Here, I shall rather concentrate on the organisation of training courses, methods used presently in Britain during the duration of a course and on the large range of training aids developed during the last years in Britain and in the US.

Organisation of training courses

1. Pre-course arrangements:
   (a). Detailed description of the course contents with indication for whom the course is intended (inexperienced versus advanced participants); adequate advertisement of courses;

(b). Availability of good overall facilities and the appropriate equipment;

(c). Availability of experienced trainers;

(d). Design and distribution of questionnaires to collect background information from participants;

(e). Screening of participants on the basis of collected data. Is their background appropriate for the course?

(f). Distribution of pre-course material to participants and preparation of handouts for the course.

2. Course procedures.

(a). Attention should be given to the involvement of participants. The atmosphere of the course should be informal. One has to expect that the participants will not plunge into discussion and will hesitate to ask questions early in the course.

(b). Were the lectures well understood and absorbed? Are any additional explanations needed? If slow-learners are among the participants, maybe self-training should be advised.

(c). Were the demonstrations seen by all participants? Were the points indicated during the demonstrations evident to everybody? Was the number of monitors adequate? Was the equipment functional? Did the trainer succeed to go online? If not what other arrangements were made?

(d). Did discussions of encountered problems take place?

3. Course evaluation

Two methods are usually employed to evaluate the results of a course: (i) the post-course reaction questionnaire collected during the course and/or after the course; (ii) the self-assessment based on the following procedure: after some sessions or after the entire course - exercise sheets are distributed to the participants. It is up to each individual to work out the excercises and either to hand them over to the trainer or to keep them. There will be always a percentage of participants who will hand over the exercises. These will be the persons who understood the lectures and the demonstrations and benefited most from the course. The exercises not handed over to the trainer could be considered as 'failures'. From the number of 'successes' and 'failures', it is easy to calculate the result which can be some measure of course evaluation.

Training aids

We are using presently a great range of training aids and they are a generic name for everything starting with chalk and talk, and going to transparencies, handouts, textbooks, workbooks, films, videotapes and videotex, audiotapes, recorded searches, CAI and CAL, etc.

In the study of Keenan and Vickery the following training aids have been described:

1. Promotional material. Useful for course organisers. This material usually distributed by post or collected at professional trade meetings, can be used to set up a resource file on a particular system, database or service.

2. Course material. Course organisers and particular trainers usually develop a background file which can contain summaries of lectures (or even full transcript of lectures), copies of transparencies and slides. This material (very often only part of it) can be distributed to the participants before the course or handed over during the course.

3. Quick reference aid. Some database processors (DIALTECH, SDC, etc.) produced quick search guides. Mini-manuals and terminal cards such as those used by BLAISE provide useful reference tools. Their biggest advantage is that they can be easily updated. The mini-manual used by BLAISE (2nd edition, 1981) is in two parts. The first section includes an introduction, overview of files, login procedures, error correction and a review of main commands and printing instructions. Section 2 reviews each of the files available in BLAISE.

4. Prompt cards. The idea of terminal cards was developed by Henry and Young who developed a series of prompt cards for online search languages. First prompt cards were published at the end of 1980. These cards included a series of multi-coloured plastic cards.

5. Brief user guides. Some database producers developed brief printed guides. Example of such a guide is the AQUALINE, a 50 page pamphlet which describes the database, searching procedures, the command language and the use of the AQUALINE thesaurus.

6. System and database manuals. These are rather 'bulky' books. They are essential to each serious searcher.

7. Ancillary tools which include thesauri and subject heading lists. Essential to searchers. A list of search aids is included in the DIALOG system manual.

8. Textbooks. The first two textbooks on online searching which appeared in the UK was by Houghton and Coney (1977) and Hall's Sourcebook (1977) published by ASLIB. Four authors (Henry, Leigh, Tedd and Williams) published jointly a book in 1980. Two textbooks have been published in the US.: by Fenichel and Hogan (1981) and by Meadow and Cochrane (1981).

9. Serials. These include: ONLINE, ONLINE REVIEW, DATABASE. Besides journal publications there are also newsletters, some very expensive, i.e. MONITOR which started to be published by Learned Information in 1981 at 98 pounds per year. The ONLINE NOTES published by the UK Online Information Centre from 1979 and the Newsletter of the UK Online User Group are two examples of useful information on courses, meetings and seminars.

10. How to ....material
    The UK Online Information Centre has produced at least nine short guides to online systems and services. Their leaflet "Going online" includes useful information on terminals, modems, and cost of searching.

11. Workbooks are considered of great value in the US. They are not so popular in the UK., not surprisingly, because workbooks are usually used as an aid to hands-on, and this method is expensive. Nobody in Britain could afford to give each course attendant few hours of online to databases. Bourne developed the first workbook in 1976, additional workbooks were developed by students of UCLA and the Drexel University in 1977.

12. Audio-visual materials. These consist of a collection of slides and a recorded script. Example of such training aid is the BIOSIS slide-book. FAO developed a complementary package for user training in two parts in 1979. The first consists of a tape/slide and filmstrip and is intended for promotional use. The second part is a self-training guide to printed publications (AGRINDEX). CIS, University of London, developed lately for INFOLINE an audio-tape consisting of a audio-cassette and script (a booklet). The audio-tape will be distributed to end-users and searchers as a promotion material. The audio-tape is in two parts: the first part is an introduction to searching; the second concentrates on the use of databases available on INFOLINE and on advanced searching techniques.
    Videotapes have been made in Britain by library schools. One was produced by CLW, Aberystwyth and dealt with searching of the ERIC database, the second by PNL (Polytechnic of North London) to support the teaching of online information retrieval.

13. Recorded searches. CIS, University of London, developed a 3-media teaching device called MEDIATRON. Mediatron linked to a VDU is used to record online searches. A voice commentary can be added, and special impulses induced on the audio-cassette activate the Kodak slide projector. Mediatron is widely used by library schools, database processors such as BLAISE and DATASTAR and various industrial companies. The advantages of using recorded searches for demonstrations during courses as opposed to live demonstrations include: no computer system failures; no

problems of telephone and telecommunication access; reduced cost of training and minimum 'hassle' for the trainer.

14. Computer Assisted Instruction packages

Moghdam in her paper on user training, 1975, underlines the following two characteristics of CAI. Using CAI, (i) the user can refresh his memory on the use of a particular command or a system feature at the moment he needs such information; (ii) in general, users prefer online instructions as compared to manual ones because the former are in an active mode and have a communicative character while the latter are more passive being a printed publication which can be just read. CAI forces the trainee to keep up with the reading of instructions and then to practice them. They give the element of 'hands-on' experience and the reinforcement given by the computer's reaction to the learner's response. CAI has also another value, namely it overcomes personal anxiety at use computers and allows the student to concentrate on the program without any disturbances. It is important that the writers of CAI programs should be also knowledgeable in online techniques, and even better experienced searchers aware of each aspect of user/system interface. Then, as Moghdam mentions "they may be capable of producing a CAI sequence which will be at least as effective as conducting a live session of the same duration." CAI sessions during the training course are very cost effective releasing the trainer to carry out other duties.

One of the first CAI packages is MEDLEARN intended to train the beginner searcher in MEDLINE. It was developed jointly by the National Library of Medicine in Bethesda and the George Washington University Medical Centre. Another well developed CAI suite of programs is the TRAINER developed by the Pittsburgh University. TRAINER has seven tutorial modules that teach the basic commands of the DIALOG and ORBIT systems. Two UK library schools explored the feasibility to use TRAINER (LEEDS and LOUGHBOROUGH) but found that the system could not be readily adapted to the local facilities. SCORPIO, the Congressional Research Service Subject Content Oriented Retriever for Processing Information Online is used in the Library of Congress in their legislative reference activities. This package is based on PLATO. It is a terminal dependent system that needs a special purpose PLATO terminal linked to the CDC communication network. CIS, University of London, developed three CAI packages: SEARCH STRATEGY (available for viewing after the lecture) - a self-teaching package which instructs the user how to design searches for online information retrieval. DIALOG with PET teaches the command language DIALOG used by the Dialog Information Retrieval Laboratories in Palo Alto, and MICROBLAISE, a CAI in five parts explaining the use of MEDLINE, MESH and ELHILL. In a short while I shall show you a new development done for INFOLINE which combines the use of a microcomputer and the

MEDIATRON and which teaches to use various LOGIN methods, explains the Boolean operators and serves as an emulator of Infoline. It has a short database, on which the user can train his/her searching. There are many other, more or less successful CAI packages developed mostly by the UK library schools. I shall mention a few of them: FOSSILS (Sheffield) guiding the student through two searches on ERIC, developed originally on the PRIME minicomputer. BLAISERS (Sheffield) instructs how to use the MARC records on BLAISE and the BLAISE Editor. ONLINE QUESTIONNAIRE is a package developed by CLW. It is an evaluation program which checks the progress of the student in online techniques. USING AACR2 (Manchester Polytechnic) is mounted on an APPLE II. The package explains cataloguing. AUTOLOG (CLW) - is an automatic online LOGON - implemented on a Hewlett Packard 2645A and Texas Instruments Silent 700.

The staff of the Robert Gordon's Institute of Technology, Aberdeen, has written a series of programs creating and maintaining online files for subject searching. These programs are implemented on a DEC-20.

15. Training files

Describing training aids one should mention also the use of training files which are now available on two systems. ONTAP is available through the DIALOG system and is based on the ERIC, Chemical Abstracts and Chemical Names databases. These are small files that are not updated and therefore can be used at a much lower price. BLAISE provides two training files: UKCTRAIN and MEDTRAIN. UKCTRAIN contains 15250 MARC records and MEDTRAIN 23000 records. Techniques for searching the main file are also available on the training files.

16. Interface devices

Systems which provide instruction and assistance to users of online systems have been developed in the US and in Britain. IIDA (Individualised Instruction for Data Access) is described by Meadow and is intended in the long run to replace the intermediary. An intermediary computer (a front-end piece of equipment) is placed between the user's terminal and the host computer. The front-end interface monitors the user-system interaction, records the search history and performs an analysis of the search. IIDA passes information to the user when needed, i.e. when user requests it or when IIDA diagnosis indicates that the user must be interrupted. IIDA makes use of the MULTICS system at MIT. The system is used at the Drexel University and the Franklin Institute Research Laboratories on an experimental basis.

CONIT is developed by MIT. It is a computer interface between the trainee and three information systems: DIALOG, ORBIT and MEDLINE. CONIT is mounted on the MIT mainframe and remote users can use it either by dialing directly or by TYMNET or TELENET. CONIT has its own command language and the users do not need to learn the command languages of the other three systems.

USERKIT developed by Philip Williams (Manchester University), is a Z80 microcomputer, a box which plugs in between the user terminal and the modem. Programs are written into the ROM of the microcomputer. USERKIT is used for automatic LOGIN procedure and for typing in search strategies which can be quickly released after the contact with the online system has been established.

17. Videotex

Recent developments include PRESTEL as a training aid. There are two organisations exploring this possibility: BLAISE has two learning courses on PRESTEL: a BEGINNER's COURSE and OFFSEARCH. PIRA has an online training session with PRESTEL called ONLINE with DIALOG.

All these training aids are helpful during online training courses. Some students do not need them and pick up very quickly the techniques taught; others need much more time, but nevertheless they can be good searchers at the end, and in some instances even better than the quick learners.

It is up to the course organisers to divide the students: into beginners and the more advanced ones; into those who have the appropriate subject knowledge and those who must start from the beginning, probably with the terminology of the subject; into those who already dealt with abstracts, indexing, thesauri and those who have no library experience.

The programme of the course should be well prepared and should concentrate on only one system during the duration of one course. Only few subject-related databases should be demonstrated. There should always be a good instruction manual given to the students at the beginning of the course and workbooks or worksheets with worked out examples at the later stage of the course. Use of the thesaurus should be explained and ample time should be devoted to (i) indexing procedures adopted by the database producer, (ii) search strategy and (iii) searching. Time should be allocated for direct 'hands-on' terminal experience. As mentioned before, the slow-learners should be provided with self-teaching training aids.

It is of great importance to choose good trainers. They should be experienced searchers themselves and their dealing with databases and users should not stop at the moment they become a teacher. Training is a continuous function. A course of 2 or 3 days does not make an intermediary. It is necessary to continue the training after online courses. At the University of London, we stress the importance of apprenticeship which may last from 3 to 6 months depending on the abilities of the trainee. During this period time is then allocated to:

(i) listening to interviews (experienced intermediary and end-user)

(ii) self-training (using simulations and recorded searches);

(iii) interviewing and doing the search by the trainee (both under the supervision of an experienced searcher)
(iv) independent searching, discussing and evaluating the search results with an experienced intermediary and the end-user
(v) training in administration of searching (cost, charges and documentation).

The eve of the microcomputer.

In 1978, CIS, University of London, acquired its first microcomputers. These were two 32K Commodore Pets with a floppy disc unit. These microcomputers were followed by others, such as the 64K Intertec Superbrain and the RAIR microcomputer with a hard disc unit.

The CIS staff started to develop programs. It became evident that a new era had begun in the library world and that librarians and information workers have to adapt to this innovation, and adopt the microcomputer and the appropriate software as their tool in many aspects of their activities.

It was decided to help professional colleagues by organising courses. First courses on the use of microcomputers were organised in 1979. From this time three microcomputer courses have been developed by CIS. Each course was designed to cover a specific aspect of microcomputers. For the newcomers into this field who required some introduction to the microcomputer and its applications in library and information work, the course "MICROCOMPUTERS AND INFORMATION" was organised. This course gives a short description of the hardware, just a bare minimum, to enable the course attendants to be more familiar with a microcomputer in case they would like to utilise them in their organisation, and then goes to demonstrate a variety of applications. The second course called "BASIC PROGRAMMING FOR LIBRARY AND INFORMATION SPECIALISTS" is aimed at all those persons who need to know more about programming and text processing. The third course puts an emphasis on the design of systems on microcomputers. Its name is "DESIGN YOUR OWN SYSTEM" and the participants must have some experience of system analysis and/or some knowledge of computer programming.

In November this year the fourth course will take place for those who are already familiar with basic BASIC. This course will be on ADVANCED BASIC, FILE STRUCTURE and the use of CP/M.

How do we organise such a course and what is its programme? Let us look at the first course: "MICROCOMPUTERS AND INFORMATION".

First, we send a questionnaire to the prospective participants to find out more about their backgrounds. Handouts on microcomputer systems, a glossary of computer terms and a list of recommended introductory literature are also mailed together with the questionnaire. No more than 10 persons are accepted on this course. There are 6

80

microcomputers in the lecture room and the first two lectures are devoted to the explanation of the microcomputer. The 'chip' is demonstrated and its nature and historical development explained. The components of the micro are shown and their role indicated. The character of internal and external memories, the organisation of the memory, bytes and kilobytes, assembly and high level languages are explained and illustrated with many examples.

The next set of lectures is centred around planning and design of microcomputer applications. The lecturer describes the functions of the microcomputer, one after another: the job specification, how do we estimate the size of the operation in number of transactions (input and output), size of records, file sizes, input and output equipment etc. Should the programs be made within the institution or should they be bought and if bought what kind of modifications will be needed. If the programs should be written internally what time commitment is needed. Are the programmers available and are they knowledgeable about the particular job to be developed. The course participants are brought to realise that programming is a difficult task, that a validation and testing period is needed for any program package to be successful.

The nature of files is given, again with many examples. Then we demonstrate programs, partly developed by CIS, partly acquired from other sources: library housekeeping programs, such as issue system, cataloguing, editor similar to the BLAISE editor, acquisition system and information retrieval programs: mainly our FIRS system. These programs are seen 'in vivo' and persons attending the course can, during the 'practical sessions', or after the lectures, use them. This is bringing a realisation that a microcomputer can perform a really useful task in a library. A special session is devoted to the choice of a microcomputer and the parameters which have to be taken into account when the purchase of a micro is planned. The questions investigated are of the following order: How will the microcomputer be used? What tasks are planned to be performed on the microcomputer? How much internal memory is needed, what peripherals are needed, what programming languages will be used, how important is the future expansion and, of course, the budget available for the purchase. The availability of microcomputers on the market is outlined and discussed in relation to the needs expressed. The software packages in the field of library housekeeping are discussed, looking at the US and UK market. This gives a state-of-the-art survey with discussion of merits and drawbacks of each system. The discussions during the course and at the end of the course usually give us a good evaluation of its success.

Let us now concentrate on the second course mentioned before: "BASIC FOR LIBRARY AND INFORMATION SPECIALISTS".

In this course the emphasis lies on teaching a programming language to people who have never previously used a computer of any size. One does not want to discourage them, on the contrary, one has to make the biggest effort to avoid any frustration. One has also to present the programme in a way that should be easily absorbed. We try to stimulate people with enthusiasm, which I hope we do not lack.

The course starts again with an introductory talk about microcomputers, but this time the lecture is more general. A person is taught just the essential principles so as to be able to understand the subsequent sessions on programming.

The sessions on programming start with the interpretation of the logic of a computer. When this is achieved then the rest is easier. The most difficult part is the first day of the course. It is astonishing that at the end of a three-day course the participants are writing short programs. Not all people become programmers. This is not the aim of the course. It is more important to encourage to program, those persons who never knew that they would like to do this job, and to increase the understanding of the functions involved in programming among those who maybe will employ a programmer and are responsible for the development of software. We found out that some of our students took their programming seriously while others are now responsible for development of software in their institutions.

Conclusions

The information system in the broadest sense includes many subsystems: authors, primary journals, secondary journals (publishers and editors), databases (producers and processors), networks, libraries, information services, referral centres, data centres, brokers of information. The development of information technology links all the subsystems much more closely than before. The relation between the information specialist and the computer specialist becomes more evident during the last years. But as information science and information technology spread widely with a constant flow towards other disciplines, so information science and librarianship must accept the penetration of new disciplines. It is not possible to avoid this change. One must accept it and adapt to changes by education and training.

The courses organised by various organisations in the online area are very popular and the original few training centres are now widely distributed in the US, in Europe and even in developing countries. The courses on microcomputers and in programming languages start to catch on and will soon reach an epidemic growth. The profession was first introduced to command languages used in online systems, to the logic of search strategy and to evaluation of search results. Now, computers and programming are being brought closer to the profession. But the process is not one-directional. People who come to us with problems, introduce us to them and we start thinking about solutions, reaching for new algorithms which may be found either in information science or elsewhere in the realm of knowledge. And so the chain reaction goes on........

References

1. BORKO, H. Teaching online retrieval systems at the University of California, Los Angeles. Inf. Processing and Management, vol. 14, (1978) no. 6, pp 477-480.

2. BOURNE, C.P. DIALOG lab. workbook. Training exercises for the DIALOG Information Retrieval Service. ERIC Report ED136751, 1976, 129 p.

3. CARUSO, D.E., GRIFFITH, J. A TRAINER for online systems. Online, vol. 1, (1977) no. 4, pp 28-34.

4. CUADRA, C.A. Online systems: promise and pitfalls. J. Amer. Soc. Inf. Sci.,vol. 22 (1971) no. 2, pp 107-114.

5. DUCAN, E.E. Education and training (for online searching). J. Amer. Soc. Inf. Sci., vol 31 (1980) no. 5, p 379.

6. HENRY, W.M., LEIGH, J.A., TEDD, L.A. and WILLIAMS, P.W. Online searching - an introduction. London, Butterworths, 1980.

7. HOUGHTON, B., CONVOY, J. Online information retrieval systems: an introductory manual to principles and practice. London, Bingley, 1977.

8. KEENAN, S. The design of training courses for the users of and specialists in networked information services. Report, November 1977, 57 p.

9. KEENAN, S. and VICKERY, A. Training requirements for online intermediaries. BL R & D Report N5724, 1982, 170 p.

10. MEADOW, C.T., EPSTEIN, B.E., EDELMAN, J.V. and MAHER, A. Individualized instruction for data access (IIDA) ERIC Report ED145826, 1977, 162 p.

11. MEADOW, C.T. and COCHRANE, P. Basics of online searching. New York, Wiley, 1981.

12. MOGHDAM, D. User training for online information retrieval systems. J. Amer. Soc. Inf. Sci., vol. 26 (1975) no. 3, pp 184-188.

13. PRATT, G., VICKERY, A. The development of multimedia teaching aids for users of computer based information retrieval systems. Program, vol. 11 (1977) no. 1, pp 10-15.

14. SOBEN, P. and TIDBALL, C.S. ***MEDLEARN***: and orientation to MEDLINE. Bull. Med. Libr. Assoc., vol. 62 (1974) no. 2, pp 92-94.

15. TEDD, L.A. Use of minis and micros and terminals in the education of librarians and information scientists. In: Minis, micros and terminals for librarians and information services, pp 111-118. London, Heydon & Sons Ltd, 198 p.

16. VICKERY, A. and BATTEN, A.M. Development of multimedia teaching packages for user education in online retrieval systems. Online Review, vol. 2 (1978), no. 4, pp 367-374.

17. WANGER, J., CUADRA, C.A. and FISHBURN, M. Impact of online retrieval services: a survey of users 1974-1975. Report, 1976, 301 p. Available from: SDC, 2500 Colorado Avenue, Santa Monica, CA 90406.

18. WANGER, J. Education and training for online systems. In: Williams, M.E. ed. Annual Review of Information Science and Technology, vol. 15, 1979, White Plains, New York, Knowledge Industry Publications, 1979, pp 219-245.

19. WILLIAMS, M.E, Education and training for online use of databases. J. Libr. Automation, vol. 10, (1977) no. 4, pp 320-334.

ONLINE TRAINING AT CHALMERS UNIVERSITY LIBRARY

Nancy Fjällbrant

Chalmers University of Technology, Gothenburg, Sweden

1. Introduction

As long ago as in 1973, Lancaster pointed out that

> "a critical factor affecting the success or failure of an on-line information retrieval system is the effectiveness of the procedures employed to teach people how to use the facilities."[1]

Up to 1980, online education was primarily directed towards intermediaries, but in recent years an increasing amount of attention is being devoted to teaching end-users how to carry out online searching. This paper will examine some recent work on end-user online instruction of engineering undergraduates and graduates at Chalmers University, Gothenburg.

2. Library User education programme at Chalmers University

Chalmers University Library had developed from (1974 to 1980) an extensive user education programme[2] which can be divided into the following stages:

1) Orientation for new users
2) A 14-hour introduction to information retrieval for 3rd and 4th year engineering undergraduates
3) Advanced courses in information retrieval (including computerized methods) for doctoral students - a 70 hour course.
4) Courses for practising engineers, laboratory assistants etc.

3. Development of instruction in computerized information retrieval

In 1978 a short multi-media MEDIATRON (for description see section 4.2) orientation programme on computerized information retrieval was introduced into the undergraduate information retrieval course.

In 1980, Chalmers Library, received a grant from the Office of the Chancellor of Swedish Universities, to investigate the possibility of teaching end-users how to carry out direct online searches on BYGGDOK. The latter is a bibliographic database (containing some 35.000 references) developed and built up by the Swedish National Building Documentation Centre.[3] This database was used for training 3rd and 4th year civil engineering students in online training and for demonstrations to students of architecture. In the same year, Mechanical engineering undergraduates were introduced to online searching on the MechEn database produced by the Royal Institute of Technology, Stockholm. Undergraduates in chemical engineering carried out retrospective online searches, with the help of an intermediary, in connection with industrial projects.

The postgraduate course in information retrieval, introduced in 1981, takes 70 hours, a considerable portion of which is devoted to online retrieval. Since 1981 a number of postgraduate students have been trained to carry out their own online searching on the DIALOG Information System. This has resulted in two 'terminal stations' - in the School of Electrical and Electronic Engineering and in the Computer Science Department where postgraduates carry out their literature searches, as and when required. Manuals and other search tools such as flowdiagrams and checklists for common commands have been produced to aid these users.

4. Undergraduate training in online searching.

The following section describes the hands-on online search training for civil and mechanical engineering students.

4.1 Goals and objectives for the undergraduate online instruction

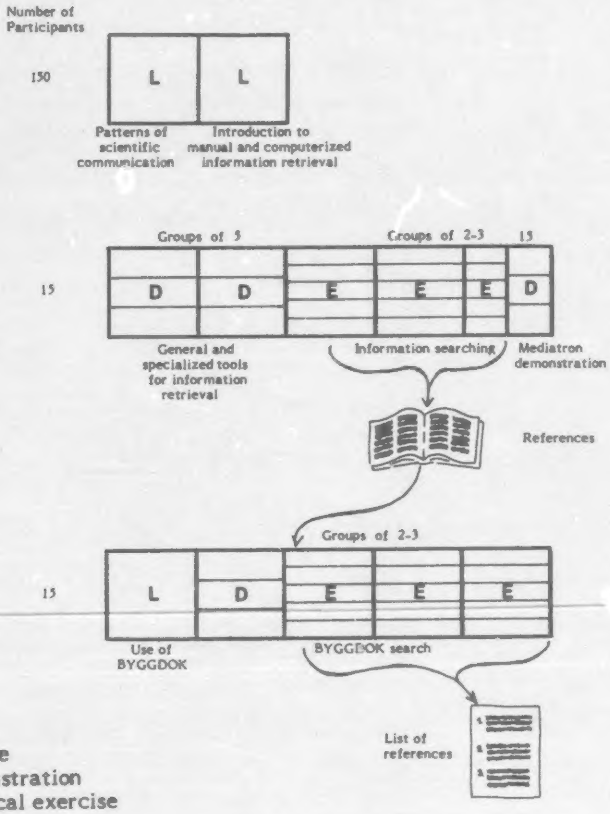
The main goal for the undergraduate online programme was to enable the student to carry out online information searches within his/her subject field as, and when, required in connection with information needs.

Specific objectives were described as follows - after completing the course the end-user should:

1. Be aware of different methods for information retrieval: manual, batch processing, SDI and interactive on-line
2. Be aware of different kinds of information searches: current awareness, retrospective, factual
3. Be able to carry out logging-on procedures for a network/database
4. Be able to use a teletype or VDU terminal
5. Be able to use the basic commands and features of the chosen retrieval system
6. Be familiar with a typical unit record
7. Be able to express a search topic in suitable terms and parameters
8. Be able to develop a search strategy in terms of Boolean logic
9. Be able to evaluate the results obtained.

4.2 Teaching methods chosen and organization of course

There is a wide variety of methods and media available for online teaching. A selection of methods was used - lectures, small group seminars and demonstrations, audio-visual MEDIATRON demonstrations, printed manuals and checklists, and direct 'hands-on' training. The organization of the undergraduate course is shown in Fig. 1. The introductory course lecture was used to present a frame of reference, with emphasis on the patterns of communication and the relationship between computerized information retrieval and manual methods. Different types of information search were presented. The main part of the course was based on small group methods - laboratory sessions with demonstrations and practical searching on a topic of the student's own choice.


Number of Participants
150
L
L
Patterns of scientific communication
Introduction to manual and computerized information retrieval
Groups of 5
Groups of 2-3
15
15
D
D
E
E
E
D
General and specialized tools for information retrieval
Information searching
Mediatron demonstration
References
Groups of 2-3
15
L
D
E
E
E
Use of BYGGDOK
BYGGDOK search
List of references

L = Lecture
D = Demonstration
E = Practical exercise

Fig. 1 Diagram of introductory course in information retrieval at Chalmers University of Technology

The first laboratory session (5 hours) was mainly devoted to manual information searching, using a variety of tools. The last hour was used for an orientation on computerized information retrieval using audio-visual multimedia MEDIATRON programmes. The MEDIATRON teaching aid was developed at the Central Information Service of the University of London by Vickery and Pratt.[4] The MEDIATRON is a modified stereo-tape recorder which is designed to carry out simultaneous recording of audio-commentaries, trigger pulses for photographic slides, and digital signals from a computerized information retrieval system. A multi-media online-orientation programme was produced using synchronized slides, audio-commentaries and recorded digital signals (examples of a search). This online orientation was displayed via a slide-projector, loudspeaker, Visual Display Unit and monitor. The selected database was described and demonstrated. Students were then given a short manual which introduced computerized information retrieval, described the database, loggin-on techniques, the search command language and search techniques. They were told that at the next session, in a week's time, they would carry out their own hands-on search.

The second laboratory session started with a short repetition, including a MEDIATRON demonstration programme. Students then prepared their searches, planning strategies with the aid of search-term frequency lists. They usually worked in groups of 2 or 3 persons. The group then carried out their search on a teletype terminal. They were given 'check-list' of appropriate command placed as an aid, immediately adjacent to the terminal.[5]

On completion of the course the students handed in a list of references relevant to their search topic, found by means of both manual and online searching. They also presented copies of their online-search in which the references obtained were assessed for relevance and novelty.

5. Doctoral courses in information retrieval

The courses in information retrieval for Ph.D students are 70 hours long and carry 2 research credits. The Faculty Board decided in 1981, that the advanced course in information retrieval should be one of four semi-compulsory courses (all Ph.D students must take two of these four courses). Three courses in information retrieval are given annually - each with 12-15 participants. The advanced course in information retrieval includes the following:

- Introduction to scientific communication
- Methods for information retrieval
- Introduction to computerized information retrieval
- Citation indexing, theory and practice
- Patents as sources of information
- Document delivery systems
- Personal record keeping

Training in online searching forms an important part of the course. Each participant carries out his/her own search on the DIALOG Information System. A training manual "DIALOG for engineers" has been written for these courses and the students carry out training with the help of the DIALOG Classroom Programme at special instruction rates of $15 per hour.

The methods and problems of document delivery are discussed in relation to the students' needs. They are introduced to DOCLINE the computerized interlending link between the British Library Lending Division and Chalmers Library. Students are also shown how to construct personal files on a microcomputer using the FIRS information retrieval programme developed at CIS, University of London.

6. Disscussion

Most of teaching and learning about computerized information retrieval for undergraduates has been directed towards orientation and promotion. Undergraduate engineering students at Chalmers University have received hands-on training in online searching. This has been limited to a single relevant database and system. Postgraduates have received a more exhaustive training in the selection and use of appropriate databases on the DIALOG Information System. Both groups of students appeared to enjoy their hands-on training and to be able to obtain useful relevant references to their information needs. Time will show whether these user groups continue to carry out some of their own searching or not. Whether or not these end-users continue with online searching, their understanding of the process involved is increased by active participation.

References

1. LANCASTER, F.W. & FAYEN, E.C. Information retrieval on-line. Los Angeles, Melville, 1973.

2. FJÄLLBRANT, N. The development of a programme of user education at Chalmers University of Technology Library. Ph.D thesis. Guildford, University of Surrey, 1976.

3. ABRAHAMSSON, S., BACKLUND, F. & ERESUND, B. Costs of building up small databases in highly specialized fields or in restricted language areas. Paper presented at the 1980 Annual Meeting of FID "Information for Industry", 15-17 August, Copenhagen, 1980.

4. PRATT, G. & VICKERY, A. The development of multi-media teaching aids for users of computer-based information retrieval systems. Program, vol. 11 (1977) no.1, pp. 10-15.

5. FJÄLLBRANT, N., KIHLÊN, E. & MALMGREN, M. End-user training in the use of a small Swedish database. Paper presented at the ALA 100th Annual Conference, San Francisco, June 26 - July 2, 1981.

THE ROLE OF CLEARINGHOUSES IN PROMOTING COOPERATION

Ian Malley

Loughborough University Library, Loughborough, U.K.

Introduction

To some extent I feel slightly out of place in this conference talking about clearinghouses in user education, when all around me I hear speakers talking eloquently about the exciting world of online. However, our clearinghouse in the UK does have a database which, although not yet accessible online, is machine-readable, and to illustrate some of the scope and content of the database (as well as to establish my credentials for attending a conference concerned with online) I have produced for the conference a short, annotated bibliography on the subject of "Educating the end user of online information services".[1] The material for the bibliography has been derived from the database and produced on computer-output microfiche.

Essentials for good cooperation

The primary function of almost all the user education clearinghouses is the acquisition of dissemination of material and information on user education. The two related functions or coordination and cooperation are often considered as secondary and certainly seem less prominent. But if we think about it we may realise that cooperation underpins the success or otherwise of all our information-gathering techniques. When our clearinghouse was established in 1977 several librarians doubted whether we would get the cooperation of user education librarians in sending teaching and other material. I have to admit that in the first few weeks, when I was often regarded as a British Library Inspector of User Education, I too had doubts. But these rapidly disappeared as material and information poured into the project. Cooperation therefore between our clearinghouse and user education librarians has not been a problem, although at times we have used various inducements to ensure that cooperation between ourselves is maintained.

In this paper I would like to concentrate on cooperation between user education librarians, rather than cooperation between the clearinghouses and their users, but it seems important to discuss the ways in which good cooperation is maintained between the clearinghouses and user education librarians. There are essential prerequisites for success in this type of cooperation which are essential to all the other cooperation that clearinghouses might be involved in.

The first essential is visibility. Librarians need to be reminded continually that the clearinghouse exists and is accessible. A few years before our clearinghouse was established the British Library Lending Division at Boston Spa operated an exchange scheme for user education materials, particularly subject guides. The scheme functioned very well for about a year and libraries initially cooperated efficiently by sending material regularly. But as publicity for the scheme fell away, contributions became less frequent until only a small number of libraries regularly contributed. It wasn't that they became less cooperative, they simply forgot about the scheme.

It follows that for visibility to be maintained, good communication and good vehicles for communication must be set up. This requires the second of my essentials - a newsletter or some similar regular publication. It is not simply a disseminator of information, but a reminder that there is some organisation that exists as a focal point and as a medium for coordination and cooperation. Our clearinghouse now produces a variety of publications and an even larger amount of publicity about these publications. They provide information, yes, but they also remind the librarian that the clearinghouse exists.

The third essential is personal contact with the user education librarians. Our clearinghouse is in the very fortunate position of having finance to enable me to visit librarians in their libraries. It is there that we can discuss problems and it is from there that most of our best efforts in stimulating cooperation begin.

Information dissemination as a prelude to cooperation

Now I have just said that cooperation (between user education librarians and the clearinghouses that is) underpins the success or otherwise of all our information-gathering activities. Conversely I would suggest that all our information-dissemination techniques are essential in our success in promoting cooperation between user education librarians. In other words when we are disseminating or publishing information on user education, we should remember that we are not simply providing information to different institutions but laying the basis for cooperation between them.

For example, a survey is often despised as a method of gathering information and the results of surveys are often regarded as an easy way of adding to one's list of publications. It is, however, a useful method of gathering factual information systematically. But at the same time it often leaves a lot of questions unanswered, often glossing over points of information that are important but cannot be conveniently answered by questionnaire. This is certainly a defect of the method but as a stimulus to cooperation this defect becomes an advantage, because it encourages librarians to enquire directly with other librarians and hence, we hope, get involved in some cooperation. Surveys therefore are a recommendable function of the clearinghouses for this purpose. The majority of the American state clearinghouses gather information in this way and the information is published in the form of state-wide directories. Our own recent efforts have included a "Survey of audiovisual programmes produced for user education in UK academic libraries".[2]

An alternative way of encouraging cooperation is through the clearinghouse's information service. A very common enquiry is 'who is doing what, where?' In our service, although I shouldn't admit it, we occasionally hold back some of the information we have in order to persuade the enquirer to make some direct contact with the institution which is doing the work they are interested in. If we provide the enquirer with all the information then he may not need to contact the other library. Our argument is that if we can get them to make contact, they may communicate, and if they communicate they may cooperate. In this way we can set off a chain reaction of contact, communication and hence cooperation.

What sort of cooperation?

But what are we talking about when we talk of cooperation? More important what is the function of this cooperation?

The ultimate purpose of cooperation is to extend activity in user education and especially to improve the quality of user education. The literature on the subject goes back over one hundred years, and it has had its high points and its low points. Periods of lively activity has been followed by quiet phases which have in turn been followed by periods of re-discovery of the subject, usually inspired by new developments in librarianship. The present high point probably goes back to the expansion of the literature of science and technology in the mid-sixties and the partly associated expansion of higher education institutions and libraries. This momentum carried user education forward into the seventies and this is the base level upon which much present activity is built.

By the early mid-seventies user education was becoming widespread but development was uneven and it was uncoordinated. Following the first Annual Conference on Library Orientation for Academic Libraries in the USA in 1971, Project LOEX, the first national clearinghouse, was established in 1972. In 1976 LOEX expressed its function as follows:

> "We are a national -- even international -- clearinghouse. Our primary objective is to collect, organize and disseminate information and materials relating to academic library orientation and instruction. We also aid libraries in their research endeavours in the field, encourage the sharing of both materials and information among other kinds of agencies and committees involved with instruction, and promote and publicize the development of library instruction whenever and wherever we can".[3]

In the following year the newly-established UK clearinghouse explained its function as follows:

> "The establishment of an information officer for user education is a clear need in order to rationalise and exploit ongoing programmes. There seems to be a very uneven development of user education programmes across the country at the moment, hence a need not only to prevent libraries from 're-inventing the wheel' in this area, but more important for them to be able to obtain advice on the 'best available tried and tested programmes and methodologies. Most user education programmes have so far been very much of a local nature with little attempt to communicate experience to others. In addition to this and[4] partially as a result of it, there is little in the way of national planning".

Both these statements underline the cooperative nature of the projects and a commitment to gather information and material with a view to its exchange and sharing. Indeed, from the outset the clearinghouses have had the prime concern what whatever was to be done, it should have one, simple effect - the quality of user education should be significantly improved. By helping workers in user education to share experience and expertise, the clearinghouses were intent on raising the base level of user education as far as possible.

The manifestation of their efforts is now in the range of their services - the exchange of materials, the acquisitions and dissemination of information through their information services, promoting awareness of the literature, the publication of newsletters and other publications, the organisation of conferences and seminars, the assistance given to committees and working parties, etc.

How successful have the clearinghouses been? Well, the fact that they were established reflects the willingness of librarians to cooperate and share; and the fact that they continue to survive, even expand, in a field which is not over-endowed by heavy expenditure at institution level, is some testament to their efforts.

Cooperation amongst the academic libraries is now relatively good, and this can be illustrated not simply by the number of committees and working parties that exist, but by the rapid development that now takes place when new techniques are taken on board by user education librarians. A good example of this is the present swift development of microcomputer techniques in user education. In this area of course, the rapid increase in microcomputer technology has had much to do with this, but the clearinghouses have helped to bring interested parties together and pool ideas. There is, nevertheless, much to be done and the clearinghouses cannot be complacent.

Cooperation across the board

If clearinghouses are successful in encouraging cooperation it tends to be within one sector, usually in tertiary education, i.e. academic libraries. The reason for this is that firstly most user education takes place in academic libraries and secondly, and consequently, most clearinghouses are based in academic libraries.

What is needed now, however, is the extension of cooperation so that it takes place not just within one sector, but right across primary, secondary and tertiary education and even beyond. It is illogical that, while user education on a continuous basis is advocated within each school, college and university curriculum, so little effort has been made to press for user education to be presented as a continuous and linked activity through primary, secondary and tertiary education. The result is that user education in tertiary education remains remedial and schools do not prepare their pupils at all adequately for tertiary education. Quite simply there is a gulf between school and tertiary user education which is not being bridged by communication, coordination not cooperation.

There is a tendency, particularly in librarianship, to sectionalise various aspects of our stock and services and form groups of primary school librarians, secondary school librarians, law librarians, audiovisual librarians, and even online librarians. This needs to be tempered somewhat if we are to get co-operation in user education across the educational sectors, and I would urge that the clearinghouses, which as I have said are generally academic-library-based, take the initiative to be the catalyst for wider cooperation. In the last couple of years the clearinghouses have taken the first step by gathering much more material and information from all library sectors.

But extending cooperation between the libraries in the various educational sectors is only one facet of the cooperation now necessary. If we seriously consider user education as an essential part of the educational process then stronger cooperative links need to be forged between libraries and the educational system. Already some serious moves in this direction have been made in schools' user education in the UK with some very encouraging results.

The risk of clearinghouses deterring the establishment of other cooperative schemes

From what I have said so far it may seem that I am advocating a very prominent role for the clearinghouses in user education cooperation. Not entirely. As agencies for cooperation they can be important but it must not be forgotten that they are above all support services for the mainstream of user education activity. There is a danger that they can act, if regarded as the prime mover in all things, as a deterrent (maybe that is too strong a word) - an inhibitor - to other schemes of cooperation which may be equally good and potentially more effective. Let me give you an example from our UK experience.

In the early 1970's there was set up under the aegis and support of the Standing Conference of National and University Libraries (SCONUL) a cooperative scheme which went under the title of the SCONUL Tape-Slide Group. The scheme had its problems -- cooperation was not as good as it might have been and it lacked an effective system of ensuring that the quality of productions was kept uniformly high. But it was an influential scheme.

By the time the British Library Information Officer for User Education (BLIOUE) project was set up in 1977, the Group barely functioned as a producing agency, and it was renamed as the Section on Co-operative Production of Packages for User Education. This was eventually absorbed by another SCONUL group and no packages were ever produced. Admittedly the demise of these schemes was to some extent the result of political dissension but there was also a feeling that some of the Group and Section's functions could be more effectively taken over by the BLIOUE project. In part, this was true, particularly in terms of dissemination of information on audiovisual media, but some of the other functions were better left to a broadly-based, grassroots cooperative scheme.

There is then a danger in the clearinghouses being left to take over the work of other cooperative agencies, and cooperative scheme becoming too centralized.

Cooperation at regional level

In the case of the national clearinghouses their role in cooperation is seen as a national one, i.e. they are agencies which promote cooperation at a national level. However I think now that they may perform an even greater service in stimulating and organising cooperation at a regional level. The reasons for this are several. Let me put these reasons in the context of the UK.

A year or two ago when money in higher education was less restricted it was relatively easy for many institutions to send several representatives to almost all national conferences and seminars on user education. A library could send almost all its user education librarians to these meetings and thus enable these librarians to maintain regular contact with similar librarians in all parts of the country. This is no longer financially possible and many user education librarians have virtually no personal contact beyond their own libraries and this reduces cooperative activity.

But even in those times of almost unlimited attendance at national meetings, cooperative work subsequent to the meeting was limited because those intent on cooperative work were afterwards physically separated from one another. In cooperative work involving audiovisual production, for example, this was obviously a drawback.

The obvious solution is to set up cooperative schemes operating within a small geographical area where the librarians can meet regularly at no great travelling cost, e.g. the state clearinghouses in the USA. Obviously almost every interested party has the opportunity to contribute and maintain easy contact.

Once these small but potentially strong regional cooperative units are established it is then possible to link up with other similar units and form larger networks, which can then ultimately feed into a national scheme of cooperation and which, even if they do not replace the existing national cooperative schemes, can be as effective if not more effective.

The role of the clearinghouse in this scenario is twofold. First of all, they may encourage and provide assistance in the establishment of the local co-operative units. And secondly, they can act as coordinators for these various units and assist cooperation and communication between them.

So far in the UK we have not had too many of these units. Many of those that do exist, however, have developed with little or no necessary assistance from our clearinghouse. I am not at all dissatisfied with this, because it shows that the desire to cooperate locally does exist and does not need to be stimulated artificially.

I won't go into detail on those local cooperative schemes except to note that they are very varied in their composition. In Leicestershire, the Leicestershire County Libraries bring together school libraries and public libraries. In the London area, the Inner London Education Authority brings together school libraries and higher and further education libraries. in Hertfordshire the Hertis scheme brings together a similar broad cross-section of librarians.

This drawing together of librarians from different academic (and even non-academic) sectors, is worth emphasizing, because as I have indicated already there are sound reasons for vigorous cooperation right across the educational spectrum. Different educational sectors still tend to work in isolation, and this isolation has to be broken down.

International cooperation and clearinghouses

The UK clearinghouse was set up primarily to overcome the isolation of individual workers in user education in the United Kingdom. And while this conference shows that librarians from different countries are not isolated from one another, there is still room for considerably more cooperation at this level than there is at the moment. The justification, if that is required, is, first of all, that we are all working in the same field; secondly, we are unwittingly duplicating so much effort; thirdly, in different aspects or sectors of user education we are at different stages of development, and those ahead should be disseminating their knowledge to others behind; fourthly, in each of our countries we are severely limited in the amount of money available for user education.

To illustrate these points let me consider the area of user education research. First of all the research workers are all working in the same field. Secondly, as far as replication of research is concerned (that is, repeating experiments where you are aware of similar experiments) then this is permissible and even recommendable. But as far as duplication of research is concerned (that is, repeating experiments where you are not aware of similar experiments) then this is indefensible and should not happen particularly when resources are limited. There will be no forward development in user education research until individual units start to build upon one another.

Thirdly, research in different countries is at different stages of development. It is now clear that research into user education in schools in the UK is far ahead of anything in any other country, and although I would hesitate to put research in the USA into the comparative testing of teaching methods head and shoulders above any other country, it is certainly far above comparable research in the UK. Yet UK research on schools user education is barely mentioned in the American literature, and American research on teaching methods is ignored in the British literature. If this ignorance in respective research literatures continues then research development between different countries will be impossible.

Fourthly, finance for research is in short supply and it should not be allowed to waste through duplication and failure to apply or acknowledge work already done. In the past five years the British Library Research and Development Department has spent many hundreds of thousands of pounds on user education research. It may not always have been wisely spent, but it has produced some work which other countries will now find impossible to fund. Better use might be made of it, but to a large extent the failure to do so rests with inadequate dissemination of the research - at all stages, proposals, interim results and final reports. The British Library recognises its deficiencies in dissemination, and although it has taken many steps to correct this within its own organisation, it has felt the need to press our clearinghouse to more actively disseminate its research. In other words it recognises the value of a coordinating and cooperative agency. This active dissemination means in effect bringing research workers and their research results into active co-operation with the practitioners for whom the research is intended.

It may seem that I have strayed from the topic of international cooperation and clearinghouses, but research is or should be international; and research, at all stages, not just at the results stage, is a matter of cooperation between research workers and practitioners, not just communication and dissemination. And the clearinghouses have a vital role as catalyst.

Now, however, I want to move on to the more obvious question of cooperation between the clearinghouses internationally.

There are no formal ties between any of the national clearinghouses but they keep in regular contact, and exchange information, newsletter and materials. The exchange of teaching materials is probably the most important aspect of this cooperation because it is the distribution and loan of materials that is the prime service of the clearinghouses within each country. In the UK we rely heavily on material provided to use by LOEX on course planning and course evaluation - an area in which our holdings are weak for the simple reason that these aspects of user education are weak in the UK. More cooperation in respect of the exchange of materials is desirable, and especially between well-established and new, emerging clearinghouses. Nothing will establish a new clearinghouse more quickly than its ability to provide a large range of teaching materials, and there is a responsibility for the larger clearinghouses to provide this - they will ultimately benefit from this initial helping hand.

This brings me to cooperation in the administration of the clearinghouses.

When the BLIOUE visited the Australian clearinghouse USER in 1979, the UK clearinghouse already had a substantial database. Advice was sought by the Australian personnel on the organisation of the LIMB database, and after this consultation the USER database was quickly developed, learning from the mistakes of the UK database. Indeed, the USER database was in several respects an improvement on LIMB. It soon appeared in microfiche format - which anticipated the microfiche format of LIMB by several months. The databases are now exchanged to our mutual advantage. Likewise we exchange, as we do with LOEX, a selection of the best available materials from our respective countries.

I hope that after this paper today you, not only as representatives of other clearinghouses or potential clearinghouses, but as individuals, will continue this cooperation. For those of you who have not already accepted the assistance of our clearinghouse through our services, perhaps your acceptance of this brief bibliography on on-line training will be the first step to further cooperative efforts.

References

1. MALLEY, I. Educating the end user of online information services. Loughborough: INFUSE Publications, 1982

2. MALLEY, I. and MOYS, S. Survey of audiovisual programmes produced for user education in UK academic libraries. Loughborough: INFUSE Publications, 1982

3. KIRKENDALL, C. The status of Project LOEX. In: Library instruction in the seventies: state of the art. Papers presented at the Sixth Annual Conference on Library Orientation held at Eastern Michigan University, May 13-14, 1976. Edited by Hannelore B. Rader. Ann Arbor, Pierian Press, 1977, pp. 25-30.

4. INFUSE, Vol. 1 (1977) no. 1, p. 2.

EXPERIENCES FROM TRAINING IN THE USE OF IRS-QUEST AT THE ROYAL INSTITUTE OF TECHNOLOGY, STOCKHOLM.

Lars Klasén

Royal Institute of Technology Library, Stockholm, Sweden

IDC-RITL, Information and documentation center at the Royal Institute of Technology Library, represents IRS-QUEST in Sweden. As such, it arranges courses in the use of the system. I am going to give an account of some results from a study [1] including all former participants in QUEST introductory courses in Sweden since 1977, when these courses started. The study was subsidized by DFI, the Delegation for Scientific and Technical Information. The online-users of the study performes at least one out of three Swedish searches in advanced online systems containing mainly bibliographic databases. Therefore many results can be valid for Swedish online users in general.

There are about 6 QUEST introductory courses held per year with about 12 participants each time. The courses are for 2 days, with about 2/3 of the time spent on lectures and demonstrations and the rest practical hands-on training at terminal.

The table shows the share of intermediaries and end-users during the years.

IRS- QUEST introductory courses 1977-1981

Number of courses: 26
Number of participants: 264

	Intermediaries	End-users
1977	81 %	19 %
1978	74 %	26 %
1979	77 %	23 %
1980	72 %	28 %
1981	72 %	28 %
1977-81	75 %	25 %

---

[1] The study is reported in ONLINE USE. A study of the subsequent use of online information services among participants in Swedish ESA/QUEST introductory courses. Report DFI 1982:1, Stockholm (DFI) 1982, 64 p.

Most results of the study concerns the online users among former course participants. Not all of the participants use what they have learnt!

Online users among:

	Intermediaries	End-user
1977	77 %	20 %
1978	89 %	23 %
1979	93 %	66 %
1980	74 %	72 %
1981	64 %	64 %
1977-81	80 %	55 %

We can see, especially, that many end users are not online users after the course. One reason can be that many of them have participated in order to get an overview of online - not to perform own searches. There are many courses for end-users at, for example, institutes of technology, that gives such an overview but there are few publicly available.

But there are changes over the time. Earlier, more of the intermediaries than today were librarians highly educated or held some senior position, now there are more assistant librarians etc. Among the end users today there are more people that probably will function as "intermediaries in a small scale". That means that they, besides performing searches of their own, also will help colleagues with searches. Probably quite a number of Swedish online users have got their first introduction to online through a QUEST-course. Most publicly available online courses in Sweden (as well as in other countries) are arranged by system representatives or database producers.

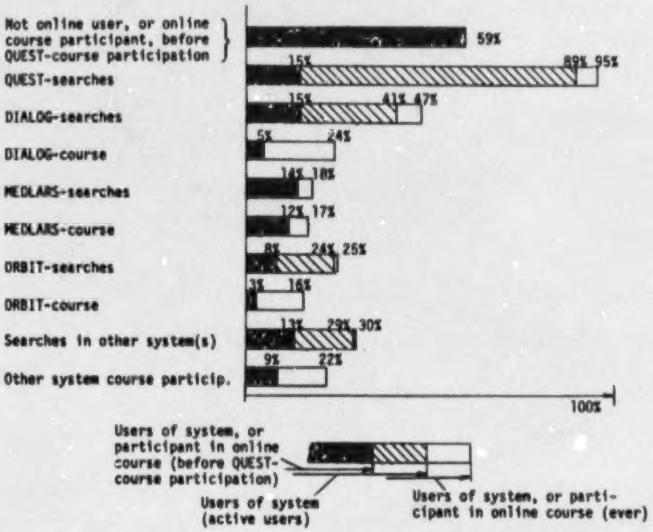
The table shows the situation when it comes to the most used advanced systems. We can see that QUEST dominates when it comes to courses for new users.

Number of publicly available courses in Sweden

	1978		1979		1980		1981		
	New users	Adv users	New users	Adv users	New users	Adv users	New users	Adv users	Others (not new users)
QUEST	5	1	5	1	7	1	6	2	3 ("QUEST-days")
DIALOG	1	1	1	3	1	1	2	4	1 ("refresher")
MEDLARS	2	1	3	1	3	1	4	1	10 ("seminars")
ORBIT	2	2	2	4	1	0	2	6	0

Concerning introduction to online it can be interesting to see the background of the QUEST course participants when they enter the course.

"ONLINE BACKGROUND"



The table also shows the situation after the course, measured between half a year and three years after participation. For the first, we can notice ever performed activities. Secondly, we can see how many active online users there are of the systems. With active use is meant at least one search in a special system during the last half year period.

Together, the results of the study show that for 59% the QUEST-course is their first real introduction to online. At least half of the rest have got their introduction through online searches and the others through participation in another online course. The study also shows that for many, the course has been an introduction not only to QUEST-searching but also to DIALOG. The DIALOG command language is similar to QUEST, and it is not very difficult to perform at least simple DIALOG searches after participation in a QUEST course.

There are many results about the search habits of the online users in the study, such as search frequency, time spent online per search, preparation time, manual use, and so on. Many results agree rather well with results from other studies.

For example can be mentioned time spent per search, number of used systems, share of users that are one-system users and number of databases used per search.

Time spent per search, average

Total online use : 24 mins
For users of
  QUEST : 28 mins
  DIALOG : 24 mins
  MEDLARS : 20 mins
  ORBIT : 22 mins

There are no great differences between intermediaries and end-users.

Number of used systems per user:

All users	2.3
Intermediaries	2.4
End users	1.8

Share of users that are one-system users

All users	41 %
Intermediaries	38 %
End users	56 %

Number of databases used per search

	Number of databases per search		
	1	2-3	4 or more
All users	34 %	60 %	6 %
Intermediaries	31 %	62 %	7 %
End users	46 %	54 %	0 %

	Average number of databases per search
All users	2.1
Intermediaries	2.2
End users	1.8

But when it comes to number of searches per month, this study shows lower values than many other studies.

Search frequency

Searches per month per user

1. TOTAL ONLINE USE

All	5.9	searches per month	(average)
Intermed.	6.8	- " -	
End users	1.6	- " -	

2. USE OF INDIVIDUAL'S MOST USED SYSTEM

All	3.8	searches per month	(average)
	2.0	- " -	(median)
Intermed.	4.4	searches per month	(average)
	2.5	-"-	(median)
End users	1.1	searches per month	(average)
	0.7	- " -	(median)

Let us first look at the values for the total online use for each user. Here we can notice how much the average values differ between intermediaries and end users.

In the study, however, most attention has been paid to the search frequency in every individual's most used system. For some persons the most used system is QUEST, for others ORBIT, for others 3RIP etc. The table just shown gives the average and medium values.

Especially for users of some systems this shows the situation:

Search frequency

Searches per month per user of some systems

	QUEST	DIALOG	MEDLARS	ORBIT
All users of system	2.6	2.9	8.3	2.2
Intermediaries	2.9	3.1	9.0	2.3
End users	0.97	0.77	(1.9)*	(0.8)*

*) Based on very few persons

The purpose of studying most used systems is to try to find out how many online users that search too seldom. To keep up-to-date with a certain system it is necessary to get frequent practice in just that system, even if searches in other systems, of course, is of some contribution.

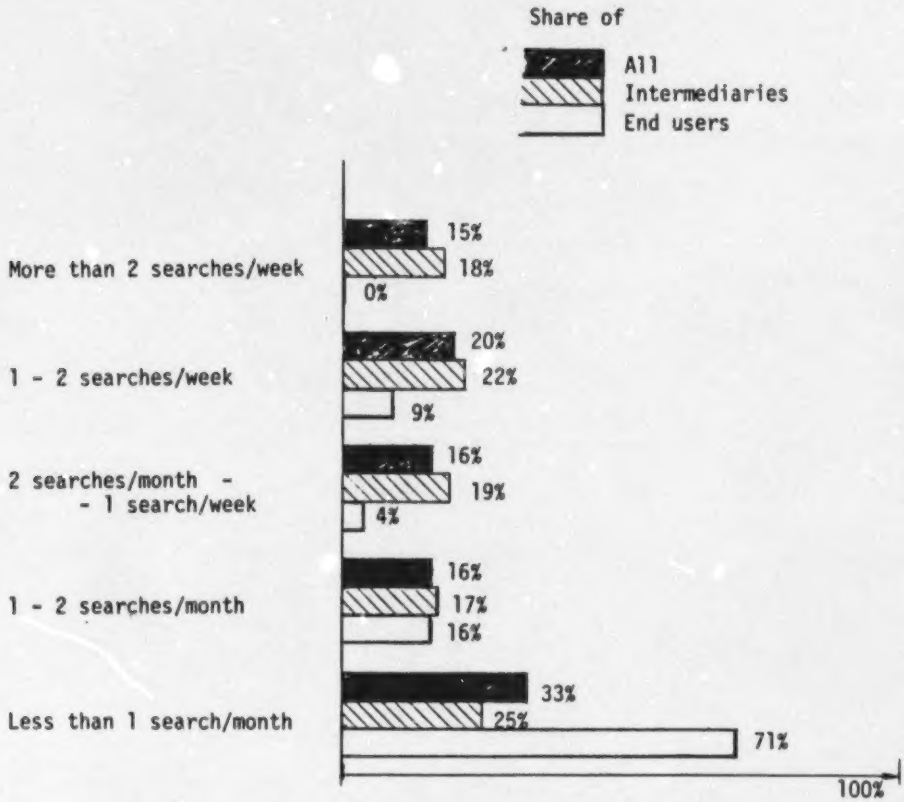
Next figure shows some opinions of lowest search frequency values.

How often should searches be performed?

- At least 5-10 searches monthly; total use	According to opinions in the literature
- 2 searches or more monthly in individual's most used system	This opinion is shared by 88 % of the online users of the study
- 4 searches or more monthly in individual's most used system	This opinion is shared by 58 % of the online users of the study

To find out how many of the users that have got too low search frequency it is not enough with average or medium values. Let us have a look on the distribution of search frequency among the users:

Search frequency distribution
Individual's most used system



Now we understand why both the average and median search frequency values of the end-users are so low. But it is rather natural - most end-users do not need searches very often. This points, among other things, at the need of user-friendly interfaces.

But we can also see that many intermediaries have a low search frequency. If we use the limit 2 searches per month as a minimum we find that 40 percent of them are on the "wrong side". If we use 4 searches per month, that is 1 search per week, 60 percent are below the limit.

The results show that many, especially among the end-users, perhaps not should perform their own searches but let other, more experienced users, perform them. But the results also point at the need of regular practical training if enough practice cannot be gained through ordinary searches. It also shows the importance of practical training in online courses.

The study shows some other results that concerns courses. It proves that most of the intermediaries think that the communication with the client (presearch interview, interplay at terminal, etc.) should form a part of online courses.

Need of courses that deals with intermediary - client communication?

	Share of intermediaries
Of great value	41 %
Of rather great value	30 %
Of rather little value	20 %
No need	9 %

Of no wonder - as most of them prefer the client present at terminal during the online session:

Should client be present at terminal?

	Share of intermediaries
To great advantage	50 %
Advantage to a certain degree	36 %
Disadvantage to a certain degree	6 %
To great disadvantage	0 %
It doesn't matter	7 %

Concerning this communication intermediary/client it can be of interest to examine the subject knowledge of the intermediaries within their normal search fields. This communication should be facilitated with such background.

Subject knowledge within normal search fields:

42 % of intermediaries

Some conclusions of the study

- End-users are few and with little search volume because
  - Need of searches too seldom to keep up-to-date
  - Interfaces not user-friendly
  - Flood of new systems and databases

- Intermediaries are needed. But they must
  - be "experts"
  - have a good command of intermediary-client communication
  - get frequent and enough practice and other possibilities to keep up-to-date

- Need of publicly available "overview" courses for end users

- Need of frequent "up-to-date" courses, mainly based on practical training, for non-frequent users

- Intermediary-client communication should form part of online courses for intermediaries.

TRAINING IN THE USE OF MEDLINE

Viveka Alton Lundberg and Per O Olsson

MIC-KIBIC Medical Information Center, Karolinska Institute Library
and Information Center, Stockholm, Sweden

Karolinska Institute, which contains the faculties of medicine, dentistry and physiotherapy of Stockholm, has through its Library and Information Center (KIBIC) the main responsibility for medical information in Sweden.

The Medical Information Center (MIC) of KIBIC is an online vendor and has, since 1972, had Medline mounted on a computer in Stockholm for searching from terminals mainly in the Nordic countries. Today Cancerlit, RTECS and Health are also available at MIC and Toxline will be available in a few months' time.

MIC also has a search service, performing searches on request, not only in its own databases but also in databases within biomedicine at Dialog, SDC, ESA/IRS etc.

One of MIC's main tasks, and a rapidly growing one, is training:

Training intermediaries in Medline searching
Training end-users in Medline searching
Awareness courses for intermediaries, researchers, clinicians, students etc.

This paper will briefly discuss the training at MIC from three points of view:

The premises for the training at MIC
The basic principles that rule the training
Some examples of how the principles are materialized in different courses.

Premises

Favourable premises for training are: the possibility to work in a small scale, excellent database access and good staff and equipment resources. Small scale: Sweden, and the other Nordic countries for which MIC has also had training responsibility, have rather small populations and the demand for training has so far not been overwhelming. Therefore, we can work with small groups at lectures as well as at exercises.

Database access: Since we have Medline on our own computer, we have no limitations in the online usage in training, for economic or other reasons.

Staff and equipment resources: Being an information center with different tasks and a staff of about 10 information scientists with academic degrees in medicine or natural sciences and having a lot of terminals in-house, we can maintain a high degree of flexibility. So, when needed, we can on single occasions use most of these resources for training.

On the other hand, training in Medline is quite a challenge. This is because it is a quite complex database with its indexing vocabulary consisting of about 15.000 terms in 7 different levels and almost 100 qualifiers, which can in a complicated manner be attached to the indexing terms. The rules that guide the indexing are very complicated. The fact that about half of the references have abstracts, which are text-word searchable, and the other half not, makes searching Medline even more delicate.

Basic principles

The starting point for every training activity is a thorough analysis of the participant's needs, interests and qualifications. Sometimes much of this information is asked for in the application form, sometimes it has to be obtained through interviews.

Based upon this analysis the main goal for the course is stated, and it is stated in the form of what the participants are expected to be able to perform when the course is finished, and also how well they are supposed to perform it. The main goal for one group could for instance be to be able to perform Medline searches for any clinician at a university hospital. A goal for another group could be just to be aware of the existence of Medline and where to go for a computerized search.

The main goal is further analysed and divided into smaller and smaller units like which commands the participants absolutely have to master and which commands they will eventually remember in a situation when they would need them. The small goal units make up the content of the course.

The methods for planning the course program and fulfilment of the goals are based on 4 important concepts: motivation, activation, concretization and individualization.

Motivation is obtained by:

- adjusting the training to the participant's needs
- adjusting the training to their progress
- adjusting to their interests
- a friendly atmosphere

Activation is obtained by:

- as much time as possible on exercises
- lectures no longer than half an hour
- every lecture is followed by an exercise on what was presented
- variation of activities

Concretization is obtained by:

- using examples that are relevant and interesting for the participants
- as much as possible is taught by exercises
- using as realistic conditions as possible, e.g. by use of role play

Individualization is obtained by:

- using the participants' problems as examples
- meeting individual participants' needs

Examples

A 5-day Medline course for intermediaries is characterized by:

- Groups of 9-12 people (12 in courses at MIC, 9 in courses at other locations, e.g. Oslo, Copenhagen and Helsinki, depending on the number of available teachers). Each group is divided into groups of 3, working together at the terminal. The groups are working on their own as much as possible with just the most necessary supervision. Every group has the same supervisor throughout the course.
- 16 exercises of about one hour each, at the terminal, on realistic search requests, chosen to illustrate the different pertinent aspects of searching Medline. Each exercise ends up with a short discussion.
- The lectures mostly cover the philosophy of searching, for instance how to analyse search requests, how to use the online capabilities to make searches optimum, how to use the requestor as the best source of information.
- Technical aspects like commands are taught by exercises.
- The role of the requestor is emphasized. In one exercise at the end of the course a teacher in each group plays the role of the requestor, and the groups have to perform searches, for which the purposes are not very clearly formulated from the beginning (as is often the case), but with the requestor present at the terminal.
- All facilities in Medline searching are not taught, but a selection of the most important ones are included in the training.

The further training seminars for experienced Medline searchers are one-day seminars on a given topic. There are only 6 participants divided into 3 groups of 2 during the terminal exercises. An example of a topic could be searching cancer problems, chemicals, pharmaceuticals etc. After a short introductory lecture 4-7 online exercises on search problems from the participants are performed. After each exercise of about one hour all six participants and 2 from the MIC staff discuss the result and the search strategies used.

The post-graduate course in library usage and manuscript writing at Karolinska Institute is a 5-day course, of which about half is spent on computerized information retrieval. The main goal for this group is to have knowledge of the possibilities, the benefits and the costs of computerized searching for information. The number of participants is about 20, divided into groups of 3 at the terminal exercises. Each group spend four and a half hours on online retrospective searching on their own current research topics, not only in Medline but also on other databases of relevance for their research. Commands etc. are explained by the supervisor as they are needed at the terminal. Each post-graduate also prepares an SDI-profile for Medline and/or databases within the EPOS/VIRA-system to be run for a couple of months.

Final remarks

This paper has tried to emphasize the most important factors in training online literature retrieval: to adjust the training to the needs of the participants, to spend as much time as possible online and to use as realistic conditions as possible. The only technical aids that are used are terminals.

EXPERIMENTAL USE OF ONLINE DATABASES IN A PUBLIC LIBRARY ENVIRONMENT

(Report from Halmstad public library, Sweden)

Lillemor Widgren

City Library and County Library of Hallands län, Halmstad, Sweden

The question of how to use computers in Swedish public library work has for too long been concentrated on circulation systems and cataloguing, not on reference work.

Halmstad City Library is the first public library in Sweden to experiment with the use of an online service for information retrieval. A 2-year project started September 1981 with financial support from the Delegation for Scientific and Technical Information, the Swedish Work Environment Fund and the National Council for Cultural Affairs.

The project aims at finding out the needs of a public library with regard to online service, how to deal with these needs, and what a county library can do to serve as a regional center for providing computerized information retrieval.

Halmstad Public Library serves as a county library for the county of Halland (on the West coast, between Gothenburg and Skåne). Halland is mainly a farming area, with industries concentrated to a few places. There are 6 municipalities in the county, each with its own public library system. There is no large research library in the county. Halmstad, the county town and largest city in Halland, has a population of about 76.000. The total population of the county is about 230.000. The county libraries in Sweden receive state support to provide supplementary service to the libraries within their counties, as centers for interlibrary loans etc.

The online experiment in Halmstad concerns the whole county. For various reasons, some databases with references to environmental information were chosen as suitable for us to start with. One of the reasons being the subject itself, since it is a subject that concerns everybody, and a subject already well represented in the libraries' printed sources of information. The following databases are now (August 1982) being used:

CIS/ILO (Occupational safety and health. Bibliographic.)
SERIX (Swedish Environmental Research Index. Projects and reports.)
VA NYTT (Environmental technology. Bibliographic.)
BYGGDOK (Building and urban planning. Bibliographic.)

RÄTTSDATA (Swedish Code of Statutes, legal cases, information about legislative committees, Agreements of the Council of Europe, etc.)
TT NYHETSBANKEN (Telegrams from TT, the Swedish Central News Agency.)
BURK/BUMS (Cataloguing system for Swedish public libraries.)

For the searching we have two Texas Silent terminals, one placed in an office where most of the searching is being done, and one at the information desk - for quick reference, mainly in the TT newsbank.

Information about the service, which is free of charge, has been given in several ways (advertisements, pamphlets, demonstration etc.) - together with some general information on how the public libraries can be used for information retrieval.

We have invited several groups of people working with - or just interested in - environmental problems, e.g. those who work with industrial health service to visit the library and see the online service. We have had demonstrations in Halmstad as well as in other parts of the county. Among the questions received, there have been several about one of the big environmental problems in Halland, concerning the oxygen deficit in Laholmsbukten (the bay of Laholm, in the south of Halland). We have also had many questions concerning occupational safety and health, and quite a few "normal" questions to the information desks concerning actual events or legal problems, have been answered thanks to the online service. We have also had questions that the questioners thought could be answered only because of this new technique, but were easily answered by the use of general encyclopedias or other reference books.

Our project has met with great interest, not only in Halland but also in other parts of Sweden, and already after this first year we are convinced that online service is a quite natural part of public library work - at least to a certain extent. In all public library work we have, of course, to rely on research libraries when it comes to more specialized information. But even databased information must be available to all, and that is why it is important that also public libraries must be able to provide an online service.

This coming second year of the project, we have to decide how to go on with the service in the future, to find out what kind of databases a public library might need to use for online searching and how public libraries can cooperate in online service, and we must find out whether this can be combined with regular reference work, or whether some librarians (at perhaps some of the county libraries) have to specialize in online service.

In Halmstad, five of the librarians have been specially trained to do the online searching - beside their ordinary work. I am employed half-time as a project leader. We were trained by people from the databases that we were going to use, especially from the CIS-center at the National Board of occupational safety and health.

As I mentioned before, other public libraries in Sweden have shown great interest in our project, and I believe that very soon, online service will be common even in public libraries (as it already is in research libraries).

At the largest public library in Sweden, the Stockholm city library, another project has recently started. Their project concerns experimental use of databases, but also data processing of their many special subject catalogues.

In Denmark and Norway experimental use of online service in public libraries has been going on for more than a year. Both Gentofte public library in Denmark and Bergen public library in Norway have recently published reports from the first year of their projects. There is also a report from Halmstad, published in April. (L. Widgren: Datorbaserad informationssökning vid länsbiblioteket i Halmstad. Lägesrapport 1982-04-29. Halmstads stadsbibliotek, Fredsgatan 2, S-302 46 Halmstad.)

These 3 reports from Scandinavian public libraries all consider the online service as something the public libraries cannot do without - and so does a recent report from a Swedish government commission working on public library issues. (Folkbiblioteksutredningen: Folkbibliotekens informationsuppgifter. Ds U 1982:16.) Online service in public libraries will probably also help to make the ordinary information work more effective - and user education will probably be a part of that!

The need for user education is observed in the Final recommendations from the Anglo-Scandinavian public library conference in Norway, May 1982:

"...The public library should be part of an information network embracing all kinds of libraries and information sources.
The volume of information flow can become a barrier to access and use, and the librarian should be involved in the process as a filter (as he has in the past in regard to the selection of printed material), by ranking available data sources, devising search strategies and evaluating performance.
In this connection, new approaches to user education will be required to enable the user to make the best possible use of the services..."

ONLINE USER EDUCATION FROM A NETWORK OPERATOR'S POINT OF VIEW

K.T. Bivins

Scannet, Sweden *

1. Introduction

The subject of online user education is normally discussed by data base producers, by hosts, and by user groups, but it is seldom addressed by network operators. Online user education is an important and timely issue, and in this paper, the role of the network is considered.

A first step is to state clearly the definition of a network. For purposes of this paper, a fundamental definition is as depicted in Figure 1:

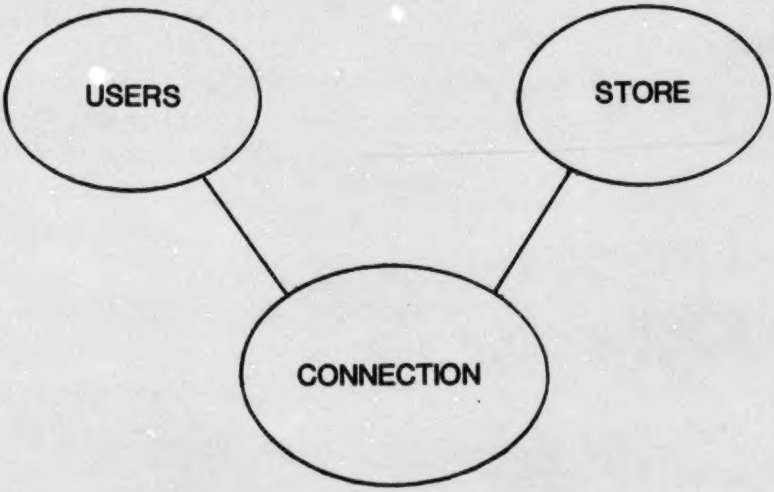


Figure 1. Network definition.

---

* now of Informatics Engineering Ltd., London, England.

This, of course, is a very general view of a network. The connection node is quite critical as the central aspect of the network. Providing network services means primarily coordinating the connection between users and stores. This paper will proceed to elaborate on types of networks (in the information field), present the "ideal" network in terms of services, and address the issue of online user education by networks in more detail. Finally, some problems of networks (in this area), will be pointed out.

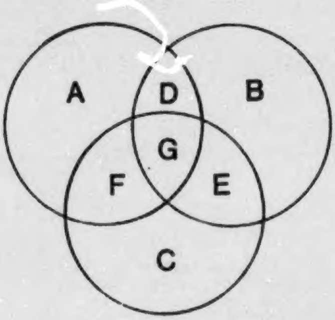
2. Network types

At the present time, information networks divide themselves rather neatly into two distinct types: information retrieval networks ("online") and library networks.

Information retrieval networks come in several varieties:

spinners	(S)
producers	(P)
connectors	(C)
hybrids	

The connections between and among these can best be seen through the venn diagram of Figure 2:



A	(S)	SDC	D	(P) (S)	ISI/INSPEC
B	(P)	BIOSIS/ newspapers	E	(P) (C)	?
			F	(C) (S)	Scannet/Prestel
C	(C)	EURONET	G	(P) (C) (S)	BLAISE

Figure 2. Venn diagram of information retrieval networks.

As is known, of course, until fairly recently database producers put up their wares through spinners. However, the D phenomenon seems to be on the increase. A number of database producers are now spinning their own products, while in other cases, such as in F, Scannet, for example, is a network which also spins databases. Euronet, C, is a network connector, but not home to any outside database. No examples of a connector which is also a producer, E, could be found, although they may exist. The most interesting situation is the case of BLAISE, G, which produces, spins, and is a network. In addition, BLAISE performs library processing operations which add an extra dimension to the diagram.

There is a dashed line in Figure 2, in the interconnection between the spinner and the producers. One could cite OCLC as an example of an organisation which technically does not "produce" a database, but which may have ownership rights to that database. This is perhaps an H, but since the area is most definitely unclear, it was not specifically included. OCLC also comes under the category of a library network.

At this stage, the hybrids are of greater interest than the single operation organisations. The trends to watch, it would seem, are of the D, F, and G variety. ISI (for example) may be indicative of a trend amongst producers. The ability of a large, successful producer to control its own distribution, and thereby increase its control over services, is something the spinners should perhaps beware of. Of even more interest is the example of a Scannet type network which can pick and choose among spinners, producers, even other networks, to best serve its users. The trend towards independence of producers serves this example well. Also, there is nothing to prevent this type of network from branching out into library processing.

3. Services of the "ideal" network.

The "ideal" network has products (things to sell) and services (things to help sell).

A. Products

A1. Information services (information retrieval and database access)
  - database directory
  - research information
  - business information (including fact/ figure databanks)
  - library information
  - public information
  - "viewdata" information (information of personal use - teletext)
  - software directory

A2. Processing services
  - ordering/document delivery
  - statistical analysis
  - text processing
  - library processing
  - telefacsimile
  - software download

A3. Database management system facilities (private storage)

B. Services to support products

B1. Access services:
- One-step access to multiple sources
  - -- single telephone number
  - -- routing mechanism
  - -- net-to-net connections

- Easy access
  - -- database selector
  - -- automatic log-on

B2. Administrative services:
- centralized source for:
  - -- billing
  - -- passwords

B3. Help services
- help desk(s)
- network-organised training courses
- online instruction (organised by levels of expertise)
- distribution of manuals and other materials

B4. Standardization services
- common command language (or other type of standardised, easy-to-use interface)
- manual design
- instruction courses

B5. Marketing, public relations services
- market research
- marketing for host
- marketing for network
- newsletters, etc.

B6. Groups services
- coordination of hosts
- coordination of users
- PTT's relationship
- other networks, etc.

B7. Equipment and supplier services
- liaison between users/suppliers
- bulk deals with suppliers
- equipment hire/maintenance

While there certainly may be more specific products and/or services, the above lists account for the desired/necessary products and services of the "ideal" network.

4. Online user education

It is a common view that education and training are the province of the database producers and/or of hosts. It is of course essential that these organisations perform these tasks for their users, as they are best-equipped to fulfill that role. It would be presumptious of the network to attempt to educate users in a specific database when the organisation supporting that database best knows its products.

4.1 The network

Assuming that the database hosts/producers perform their own educational tasks, where then does that leave the network? Previous sections of this paper have emphasised the products and services which the "ideal" network could provide. Among those products and services were several forms of education and training. They included:

Products:
- database directory

Services:
- help services
  - help desk(s)
  - network-organised courses
  - online instruction

- standardisation services
  - instruction courses

In addition, it could be easily argued that marketing is a form of education and/or training. The issuing of newsletters, the design of manuals, all these are easily seen as forms of education and training.

Because a network is apt to have and/or employ considerable hardware, it most likely has at its disposal such facilites as teletext, videotape recorders and players, and software support to put up electronic mail and other news and messaging facilities.

The education and training services of the network can be divided into two basic groups, or modules, as depicted in Figure 3:

MODULE 1

INFORMATION SERVICES
THE NETWORK
ONLINE SEARCHING

MODULE 2

MARKETING COURSE

Figure 3. Modules for education and training

In module 1, the network can offer information services education, such as online and print manuals (it can be the central distribution point for hosts and producers), a help desk (both centrally and in distributed areas), facilities such as a database selector, and a training center, which can be used by hosts and by the network itself.

In terms of education on the network, it is possible to envisage a series of short courses on the nature of networks, including division of responsibilities among network, PTT, host, and the like. These important topics are often sources of confusion to many users.

For online searching, the network can encourage the development of a common command language (and instruction in its use), and/or the development of special-purpose front-end processors to aid in facilitating the use of databases and databanks.

Module 2 addresses a different area. Here, one is attempting to spread information about the network in the expectation of attracting new users. This could be thought of as a promotional "course" which would essentially "sell" the services to potential customers. This course would appear at trade shows, conferences, and the like.

Of course, these products/services should be produced in the most effective manner, using to the fullest extent possible, electronic aids.

4.2 Network problems

It must be clear that the education and training programme offered by the network be differentiated from that of other organisations, specifically hosts/producers. In addition, it must be coordinated carefully with user groups and others offering training courses. There is a role for the network, as outlined above, but it must be especially careful not to intrude into occupied territory. It must be sufficiently evident that the courses offered by the network be network-related, not database specific.

Another area of concern to the network, as addressed in Module 2, is that of attracting new users to its services. While of course this is a major concern to database producers/hosts, the network can perform the dual function of marketing its own services, and thus of benefitting databases and banks run on it. It can also attempt to break new ground and attract new categories of users, which again serves to benefit itself and its hosts and producers.

5. Conclusion

This paper has presented a general view of the network, mapped its "ideal" configuration, especially in terms of products and services, and then discussed the particular role of the network in relation to online user education. The especial problems of the network involve a clear differentiation of its role as opposed to the roles of users, hosts, and producers. Within this framework, it is clear that the network can indeed offer important education and training services, which can benefit both itself and its hosts, producers, and users.

Reference

1. BIVINS-NOERR, K.T. Network Services. In: De Brisis, K. et al. ed. Library networks. Intermarc Software - Subgroup seminar 6, Oslo, Universitetsbiblioteket, 1982.

ONLINE EDUCATION FROM A SYSTEM OPERATOR'S POINT OF VIEW

Gro Hørthe Pavicevic

Norwegian Centre for Informatics A/S, Oslo, Norway

General

The Norwegian Centre for Informatics, for short called NSI, was until 1st of July this year a research institute organized under the Royal Norwegian Council for Scientific and Industrial Research. After July the institute ceased to exist, and a company of shareholders was established, Norwegian Centre for Informatics Ltd. That means that our activities for the future have to be run on a commercial basis.

We are about 35 people employed at NSI, and we are specializing on working with computer-based information systems. Polydoc and Mikro Polydoc are our main products for the time being. They are both computer systems for registration, storage and retrieval of information - bibliographic or factual.

Polydoc is used by about 70 organizations and firms for:

- in-house databases like library catalogues
- public available online databases
- production of printed indexes

At NSI, 12 databases are publicly available for online searching, 2 factual and 10 bibliographic. The bases are presented to the users in Polydoc search language, which is not very different from SDC's ORBIT. We have about 230 registered users, mostly from the Nordic countries, but also some (13) from other countries.

Activities within user education

In our regular course programme we have three kinds of courses:

- Polydoc user education (2 days)
- Online searching in Polydoc data bases (1 day)
- Mikro Polydoc user education (1 day)

In addition to these courses which are arranged 2-4 times a year, we give on demand specially designed courses within the information retrieval field.

"Online searching in Polydoc databases" is aimed at potential or new users of our online service. It is a one-day course arranged about 4 times a year. Usually they are located in Oslo, but last autumn we also arranged courses in Gothenburg, Copenhagen and Helsinki. Maximum number of participants at each course is 10. They are librarians or end-users, and most of them are new in the online field. A few have some experience. The aim of our education is to:

- make the participants aware of the possibilities they have for information retrieval through the services of networks, data base processors and data base producers
- make the participants able to use Polydoc search language
- give an overview of the data bases we are offering

The programme for the course is:

1. Introduction
2. How to come in contact with the data bases. (Telecommunications, log-in procedure)
3. The Polydoc data bases in general
4. Polydoc search language - short introduction
5. Search example in detail
6. Individual practising on the terminal

Point 2: Good experience with inviting a lecturer from the Norwegian PTT.

Point 3: Very short comments are given about each data base. Formerly we invited the data base owners to talk about their products, but we found that this was too time-consuming. The participants are not interested in details about all data bases.

Point 4: Explanation of the difference between data base and search language, the general structure of the bases, a few commands (FILE, FIELDS, PRINT) and the use of AND-OR-NOT.

Point 5: We do not have a good and well-fitted training room for our courses. It is not likely that it will be possible to have that before in a couple of years when we will have more space. Therefore we distribute paper copies presenting a search done in AID - our biggest data base with 60 000 references - and we explain the search example in detail. The user's input is always marked in a way that makes it easy for the reader to see what is input and what is output. We have found the paper copies quite practical, because they can be used later as an aid for searching after the course.

Point 6: This may be the most important part of the course. We have 2 or 3 persons at each terminal. We use one instructor for each group. If possible we divide the groups according to their subject interests. For helping the participants with getting ideas for searching, we have prepared search questions for each data base.

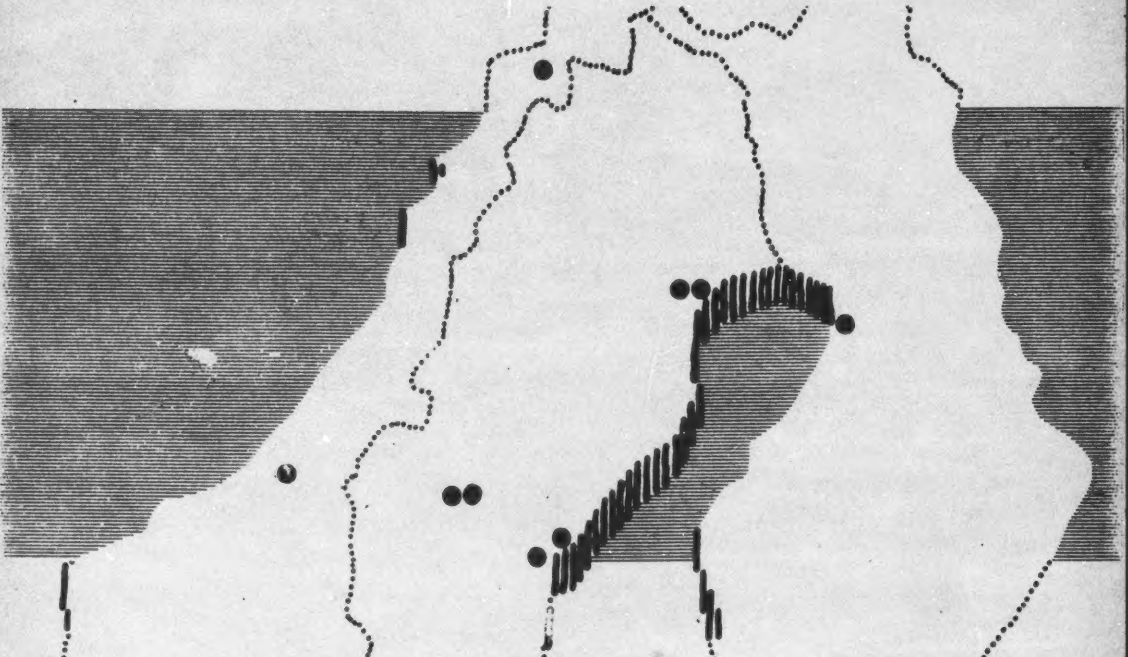
As you can understand, we have based our courses at an elementary level and they are not limited to one subject or one data base. Our market is primarily Norway and also the other Nordic countries. The telecommunications and the costs for using them are a barrier for users elsewhere, but we have also users in e.g. the Netherlands. Courses for certain categories of users, or courses limited to one data base or one subject, would probably be better from the users' point of view, but with a comparatively small market it has not been practical for us to arrange this.

Future plans

We have started to think about new methods of educating users, e.g. by use of video or programmed instruction. This summer we have made some tests with our video equipment in order to develop a video programme about "How to use Mikro Polydoc". It will be a course more comprehensive than just an online course.

Concerning programmed instruction, we would like to offer a Polydoc online searching course along with the online data bases. The user may educate himself at the moment he needs it and he may "run the race" in his own way. It would also be a useful tool for repeating forgotten knowledge.

Such new methods as here mentioned will not replace our courses with personal teachers. We think there will be room and use for both the conventional course and other methods.



BYGGDOK

125

USER EDUCATION FROM A DATABASE PRODUCER'S POINT OF VIEW

Adolf Stern

The Swedish Institute of Building Documentation, Stockholm, Sweden

As database producers we have of course identical interests with the network operators and the system operators:

- to increase the user population and to influence the users to make an extensive use of our database
- by giving them a good and reliable service, a quick and easy access to the information
- at acceptable costs.

By increasing the number of users and their use of the database we can spread the cost of the operation and reduce the rates to be paid by the individual users.

However, as producers of the database we also have other interests and possibilities. We have the possibility to determine the quality of the information itself by selecting the kind of information which is most useful to a particular user population and to describe it in a way which is satisfactory from their point of view. We also have the possibility to influence the effectiveness of the searches by choosing relevant identifiers: keywords, subject headings or numerical codes. Finally, as it is today, the ultimate responsibility for access to the primary information rests with the database producer - both when it comes to procuring the original document, a copy or a loan, and when there is the question of identifying the bibliographical information in the database in a way easily understandable not only to information scientists but also the end-users.

We database producers are aware of our possibilities in those areas. The acceptance, the success of on-line information will be largely dependent on our work in those areas, how we succeed in fulfilling the needs of the users to receive helpful information in an easy way.

To ensure this acceptance by the users, we need the feed-back, the constructive criticism from the users, preferably not only from the users of today, but also from the users of tomorrow. This gives us the assurance that what we are doing, what we are spending our time and effort on, is worth while. This gives us the possibility to see when we are heading for the wrong tree in the forest and to correct our aims.

Now, who are those users of today and of tomorrow?

At BYGGDOK we have conducted a major study of the market in the building sector. Admittedly, the study was based mainly on interviews with a cross-section of the present users and as such not so very conclusive regarding the future, but at least we know where we stand. Combining this with our daily operational experience and common sense we can make some observations and dare some guesses:

- Around 85 % of all on-line searches today are performed by intermediaries, sometimes with the end-user sitting next to them, but mostly yielding to the initiative of the intermediary.

- The remaining 15 %, the end-users performing the searches themselves, cannot be identified as belonging to a certain category. All our hypotheses regarding grouping according to age, education, type of work, size of company, geographical location etc have been proven wrong. What these people do have in common, is a certain amount of curiosity, a personal charateristic of people who have been using libraries even in the past.

- The suggestions we receive from the intermediaries are sometimes very helpful. However, to base the development of the future databases on their suggestions only, would be as if the former manufacturers of chauffeur-driven cars would have based their product development only on the suggestions of the chauffeurs. We believe that the use of on-line information will increase hundredfold in the next decade and the users will be the end-users, if not for any other reason, then simply because there will not be sufficient intermediaries available to serve them.

- The database of tomorrow will be an end-users database, requiring a minimum of bibliographic skill and giving an optimum of relevant information. The only judge of the relevance of the information received to the particular needs and requirements is the end-user himself. From our point of view, preferably an enlightened user, who has high but realistic demands and expectations. We do not believe in the evaluations studies made by people counting numbers, measuring the recall and the precision of the system according to the number of references which they deem to be useful to a hypothetical user.

- Therefore we have to obtain our feed-back from the experienced end-users. And now we are touching the question of marketing and sales promotion.

At BYGGDOK we have spent a considerable amount of thought and work on these problems. Our experience as pioneers in this field is a history of overcoming obstacles. It is a long history with a never ending range of obstacles: lack of interest, lack of time, administrative procedures, absence of a terminal, you name it! What it boils down to is that grown-up people, be it researchers or practitioners, consultants or contractors, managers or site-supervisors, administrators or manufacturers do not like changing their established pattern of behavior.

People who have worked for years, getting their information in their various ways, however insufficient and unsatisfacatory, are not easily persuaded to give up their old ways in favour of new techniques. In the best case, what we can achieve is to persuade them to accept the on-line information as an additional source of information, without giving up their old habits. This is, of course, not very productive as it only adds to their cost and work burden without relieving them from anything.

- In spite of that, we have a very optimistic view regarding the increased usage of our database in the future by the end-users. This optimism is closely connected to the results achieved by education in information retrieval given to students at academic institutes and universities. First of all the Chalmers University of Technology, which I believe was the first in Europe to introduce mandatory education in this field. Young architects and engineers who received education in information retrieval at school find it only natural to use databases when they need information at work, and include on-line information retrieval in their working habits.

A considerable part and a growing part of our end-users today are those young people who received this education.

We at BYGGDOK consider the close co-operation we have with those responsible for this education at the Technological Institutes as the most important part of our long range marketing policy.

I can also mention that the attitudes of the students taking the course are registered by the teachers and comments made by students are forwarded to us at BYGGDOK. They are studied closely and considered to be an important input to a new study we initiated last year concerning the next generation of our database.

In other words, we are very pleased and we have reason to believe that the educational staff at Chalmers is also satisfied with our co-operation. They have chosen the BYGGDOK database as a suitable database for educational purposes as they consider it to be user-oriented.

Today our database contains about 40 000 references and increases with approximately 6 000 references a year. The references represent mainly Scandinavian literature, in the fields of town-planning, architecture, construction, building industry, services, environment and energy conservation. The input is decentralized and performed on-line simultaneously from sister organizations in Denmark, Finland and Norway via SCANNET.

There are today over 60 different organizations, institutions and private companies, spread all over Scandinavia, using the BYGGDOK database for on-line searches. Some of them have several terminals in action. The information retrieval system we are using at the moment is ISIS allowing free text sequential searches and searches in inverted files on identifiers such as author, language, keywords, UDC notations, allowing for Boolean algebra, right-hand truncation etc.

The keywords we apply are not subjected to any artificial language control. They form an open ended list of descriptors which, however, is periodically reviewed and improved. The experience gained by searches with those keywords revealed the need of another controlled vocabulary for indexing and resulted in the development of a selected set of UDC notations for the building sector, usable for post co-ordinated searches and for computer application. This set, called RUDC (reduced UDC) has been completely developed and elaborated by Architect Bernhard Lindahl at our institute. These RUDC notations also make it possible for people outside of Scandinavia to perform searches on our database. There is a growing demand from outside Scandinavia, especially as we are now going to be connected to the EURONET.

We are also planning to introduce English keywords into our database, which will be possible now, since we have procured a new Siemens computer and are converting the BYGGDOK database to the GOLEM retrieval system.

THE ALIS SYSTEM

Esmar P. Pedersen

National Technological Library, Lyngby, Denmark

The host data processing centre of DTB (Denmarks Tekniske Bibliotek) for the ALIS (Automated Library Information System) online catalogue system is placed at DC (I/S Datacentralen af 1959).

The information retrieval part of the ALIS system has been in operation for the past few years, and because of the many possibilities of easy access and free admission to the system, it has turned out to be a great success and is used to a very great extent.

DTB has integrated this online catalogue system with the local circulation system.

As far as EURONET DIANE and SCANNET are concerned, the host data processing centre of DC acts as the national centre of Denmark.

Owing to the structure of the ALIS system, users of other data bases at DC are also able to make use of the ALIS system, and vice versa - the users of the ALIS data base have easy access to other data bases at DC than just that of the ALIS system.

THE TECHNICAL PART

The ALIS data base is accessible via a number of various entrances, such as:

a) EURONET DIANE
b) SCANNET (TELEPAC)
c) DTH-net (the local network of the Technical University of Denmark)
d) Telephone (direct)
e) Internal connections

By entering the ALIS system via the entrances of DTB (b-e) the users of the system can order the found literature online, and at the same time get information about the circulation status (starting from 1983), i.e. whether the wanted publication is on the shelf, on loan or reserved, and if so the number of reservations already made.

USER EDUCATION IN INFORMATION RETRIEVAL AND ONLINE ORDERING

In order to meet the great demand from a constantly growing user clientele, a number of courses of instruction have been held at DTB for both internal- and external users, to teach the participants how to use the ALIS system. In 1981, 40 one-day courses were held free of charge (see enclosed programme). The number of participants ranged between 10-16 per course.

The courses of instruction which were held have, no doubt, contributed to the increasing hours of the daily consumption of the ALIS system, which are now about 27 hours a day.

The participants attending the courses had quite different backgrounds (experiences). However, it appeared that specialists, coming from public- and private institutions and having previous online experience, got the greatest benefit from the technical part of the instruction. Still, these people (intermediaries) were often in great need of the knowledge given them in the courses. However, because they were already acquainted with the subject through their professions, they seemed to be able to absorb the required information in the relatively short time available in a one day course.

Library staff without any ADP experience also attended the courses, gaining thereby a free introduction to this new working field.

PROGRAMME FOR ONE DAY ALIS COURSE

9.00 - 11.30 Welcome

Construction of the ALIS-system

Description of the subsystems and their relationship:

- a) Circulation online
- b) Circulation batch

The ALIS-catalogue construction:

- a) Contents of catalogue posts
- b) Search possibilities during cataloguing

ALIS-search dialog:

- a) Entry points
- b) Commands

Integration between searching and circulation

Exercises on the terminal

11.30 - 12.30 Lunch

12.30 - 15.30 Continued exercises

Demonstrations of the system

END-USER TRAINING IN THE USE OF ONLINE CATALOGUES TENTTU AT HELSINKI UNIVERSITY OF TECHNOLOGY LIBRARY

Arja-Riitta Haarala

Library of Helsinki University of Technology, Espoo, Finland

Background

The catalogues of Helsinki University of Technology Library were computerised in the beginning of 1980 and were made available for online searching during 1981. The system called TENTTU is based on cataloguing with a Finnish mini-computer MIKKO 3/16 under the guidance of the Automation Unit of Finnish Research Libraries and with the assistance of the National Computer Centre. The online search system uses a Swedish information retrieval programme 3RIP. In July 1982, about 300 terminals were used for accessing this system. The products of computer processing are monthly cumulated alphabetic and classified catalogues on microfiche, a monthly Accessions Bulletin and monthly cumulated printed catalogues for all department and institute libraries.

The following databases are available at the University's DEC-20 computer:

- TENTTU-Books covering books, reports, dissertations, serial volumes etc. acquired by the Library, with a monthly growth of 1000 since January 1980.

- TENTTU-Serials is catalogue of journals and serials including holdings information of about 15,000 titles.

- TENTTU-Reports is a register of technical reports since 1982.

- TALI includes about 9000 Finnish technical articles annually. The online database goes back to 1980.

Passwords are offered to both internal and external users.

The goal set out in the regulations of the Helsinki University of Technology Library is to support teaching and research as well as studies at the University, and further to serve as the National Central Library for Technology offering services to everybody who needs scientific and technical information. Goals also include instruction in the use of information media and services.

Users of library catalogues include therefore:

- library staff
- teachers and staff of the University
- students
- library and information personnel in the other organisations
- other library users

Training programme for library staff

Internal users were regarded as important and the library staff was chosen as the first group to be trained. It would, namely, be their task to help library users to cope with the system. Some sort of resistance was expected, but it was thought that to be among the first to be trained to use the system, would give high motivation. This proved to be a correct conclusion and everybody wanted to be trained to use the system. The common question at the time was "When is it our turn?". The three-phase compulsory programme included a demonstration, a workshop and an available help desk. After the demonstration every department and a special unit of the Library were invited to take part in a workshop at a time suitable for them. A tailor-made workshop was carried out. A systems specialist, who conducted all these workshops, planned the course contents with experienced online specialists. Every participant produced a miniguide of his/her own with login and logout samples, and a simple search sample was also included. The third phase was a help desk. This means that the information specialists, familiar with the Tenttu system are available for help during working hours (8 am to 4 pm). By monitoring the usage of the system the need for refresher courses and more help can be identified. About 60 persons have been trained so far.

Training programme for university staff and teachers

According to our priorities the next important group was university staff and teachers; they are also heavy computer users and familiar with computer methods. Many teaching methods were applied. The Tenttu system was advertised in the University's newsletter. There was also an article in the Computer Centre's bulletin. The most effective method was to send a letter to the heads of the departments. They were informed that an instructor would visit laboratories and institutes whenever invited. Workshops, demonstrations and even lectures were organised according to the wishes of users. Researchers and teaching assistants liked workshops where a self-made user manual was produced. Especially important was the instructor the best of whom was a subject specialist graduated from the department concerned. This type of instructor uses the same slang as the users. Tenttu will also be included in the university newcomer seminars. The use of Tenttu by research staff and teachers cannot be monitored but more calls to the help desk can be registered.

Training programme for students

Tenttu training was included in the regular student education programme given by the Library. First year students were made aware of computerised catalogues and online search systems, but only microfiche catalogues were taught. Third and fourth year students have subject-oriented instruction. The HTKK-INIS online system was given up and Tenttu was included. This means that they had a one-hour lecture and an exercise on Tenttu. These courses are credit giving courses and the exercise is compulsory. Tenttu subject searching facilities were introduced at the lecture on UDC (Universal Decimal Classification) and an exercise was handed out. These courses for undergraduates can be either compulsory or optional depending on the decision of the departments concerned.

Tenttu training is also included in doctoral programmes. Not only online catalogues but also document delivery are dealt with during post-graduate seminars. A similar type of training is also given in the Course of Information Systems and Services.

Training of external users

In the year 1981 workshops for external users were started. A workshop was organised on the first Monday of every month. In July there were 24 libraries or information services operating as external users. These workshops include a 1-2 hours introduction with an online demonstration and afterwards there is hands-on training in groups of 4-5 persons.

User aids

The following aids are available in July 1982:

- Miniguide
- Tenttu & Tali opas (Guide in Finnish)
- Tenttu-Manual, The Online Catalogues of Helsinki University of Technology Library
- Complete manual online
- UDC tables and indexes

USER EDUCATION IN THE ONLINE AGE

INTERNATIONAL SEMINAR

17th - 19th August 1982, Gothenburg, Sweden

Participants

Viveka Alton-Lundberg
MIC-KIBIC Medical Information Center, Karolinska Institute Library and Information Center, Stockholm, Sweden

Hedvig Csopak
Chalmers University of Technology Library, Gothenburg, Sweden

Inga Elding
Lund University Library, Lund, Sweden

Nancy Fjällbrant
Chalmers University of Technology Library, Gothenburg, Sweden

Helen Gravås
The Swedish College of Librarianship, Borås, Sweden

Arja-Riitta Haarala
Library of Helsinki University of Technology, Espoo, Finland

Ole Haffström
Århus State and University Library, Århus, Denmark

Joseph Holender
OVO AB, Gothenburg, Sweden

Louise Ineson
College of Librarianship Wales, Aberystwith, Wales

Ben Kanters
Samson Information Technology Group, Alphen aan den Rijn, The Netherlands

Elisabeth Kihlén
Chalmers University of Technology Library, Gothenburg, Sweden

Lars Klasén
Royal Institute of Technology Library, Stockholm, Sweden

Aud Lamvik
Library of the Norwegian Institute of Technology, Trondheim, Norway

Tomas Lidman
Delegation for Scientific and Technological Information, Stockholm, Sweden

Tore Lund
Chalmers University of Technology Library, Gothenburg, Sweden

Ian Malley
Loughborough University Library, Loughborough, U.K

Margareta Malmgren
Chalmers University of Technology Library, Gothenburg, Sweden

Inger Melin
Linköping University Library, Linköping, Sweden

Kathleen Noerr
SCANNET, Gothenburg, Sweden - U.S.A.

Peter Noerr
Consultant, U.K.

Jim Nordstedt
Chalmers University of Technology, Gothenburg, Sweden

Theodora Oker-Blom
NORDINFO. The Nordic Council for Scientic Information and Research Libraries,
Espoo, Finland

Per Olsson
MIC-KIBIC Medical Information Center, Karolinska Institute Library and
Information Center, Stockholm, Sweden

Gro Hørthe Pavicevic
Norwegian Centre for Informatics, Oslo, Norway

Esmar Pedersen
National Technological Library, Lyngby, Denmark

David Reeder
University of New South Wales, Kensington, Australia

Manfred Skaliks
Bibliotheek Technische Hogeschool Twente, Enschede, The Netherlands

Ingrid Skoglund
The Swedish College of Librarianship, Borås, Sweden

Liu Song-Fu
ISTIC CB-Institute of Scientific and Technical Information of China, Chongqing Branch

Adolf Stern
BYGGDOK - The Swedish Institute of Building Documentation, Stockholm, Sweden

Klaus Söndergaard
Dansk Euronet-DIANE Center,Lyngby, Denmark

Alina Vickery
Central Information Services, University of London, London, U.K.

Brian Vickery
University College, London, U.K.

Elizabeth Vogel
University of Konstanz, Konstanz, West Germany

Betty Wedel
National Technological Library, Lyngby, Denmark

Sven Westberg
Chalmers University of Technology, Gothenburg, Sweden

Lillemor Widgren
City Library and County Library of Hallands län, Halmstad, Sweden